



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

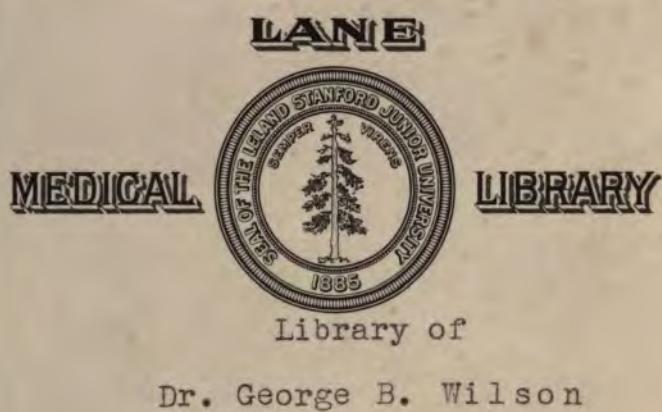
About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

LANE MEDICAL LIBRARY STANFORD
IS .G67 1887 STOR
practical treatise on impotence, sterl

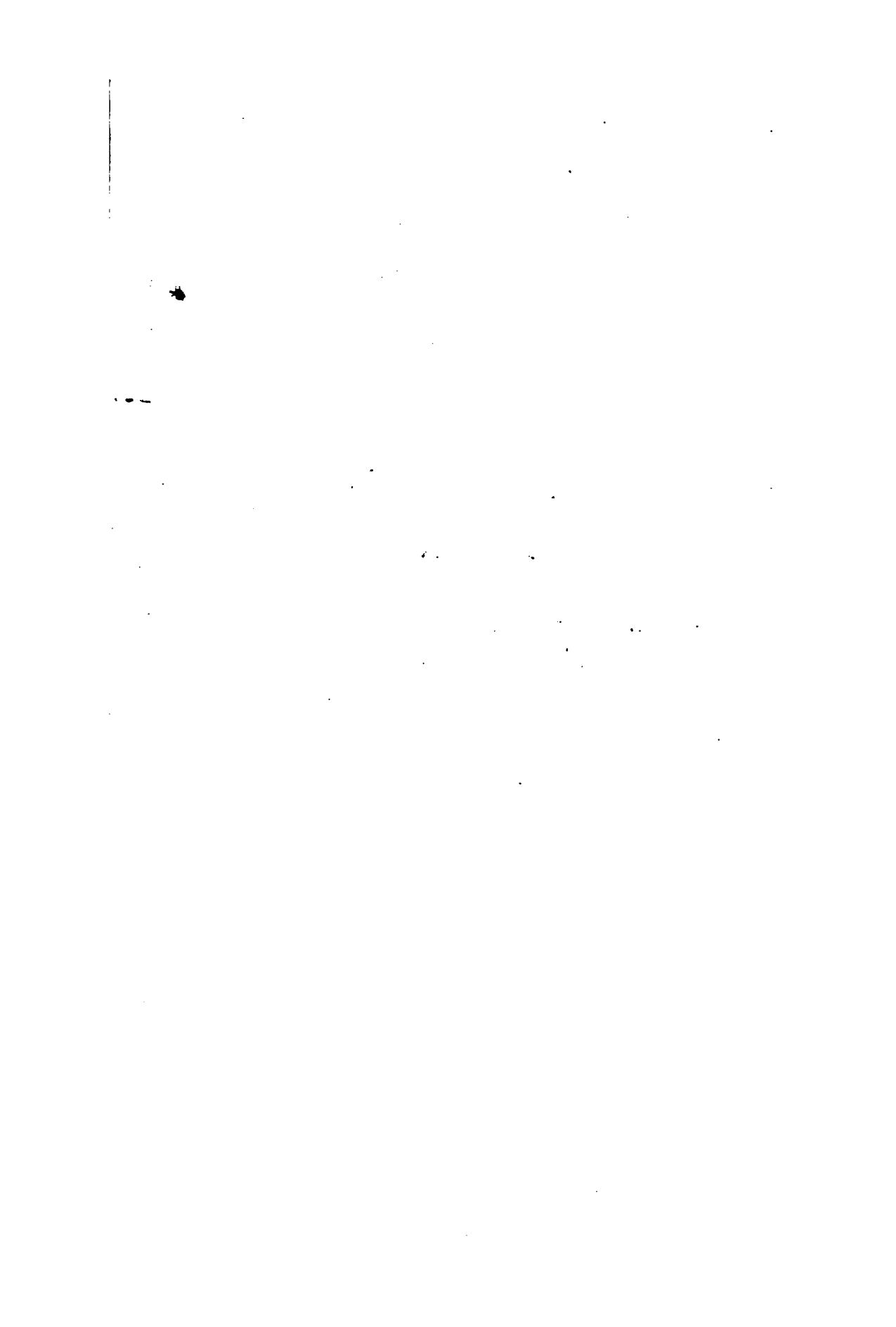


24503432015



157







A PRACTICAL TREATISE
ON
IMPOTENCE, STERILITY
AND
ALLIED DISORDERS
OF THE
MALE SEXUAL ORGANS.

BY

SAMUEL W. GROSS, A.M., M.D., LL.D.,

PROFESSOR OF THE PRINCIPLES OF SURGERY AND CLINICAL SURGERY IN THE JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA; FORMERLY PRESIDENT OF THE PATHOLOGICAL SOCIETY OF PHILADELPHIA; AUTHOR OF A PRACTICAL TREATISE ON TUMORS OF THE MAMMARY GLAND; FELLOW OF AND FORMERLY MÜTTER LECTURER ON SURGICAL PATHOLOGY IN THE COLLEGE OF PHYSICIANS OF PHILADELPHIA; FELLOW OF THE AMERICAN SURGICAL ASSOCIATION, ETC. ETC.

THIRD EDITION, THOROUGHLY REVISED.

WITH SIXTEEN ILLUSTRATIONS.



PHILADELPHIA:
LEA BROTHERS & CO.

1887.

LANE LIBRARY

Entered according to Act of Congress, in the year 1887, by

LEA BROTHERS & CO.,

in the Office of the Librarian of Congress, at Washington.

DORNAN, PRINTER.

LEA BROTHERS & CO.

IV 1
987
1887

PREFACE.

THE rapid exhaustion of two large editions of this work, the favorable comments which it has received from the periodical press, its translation into the Russian language, and the fact that it has been out of print for several months, constitute valid evidence that it has filled the void for which it was originally designed.

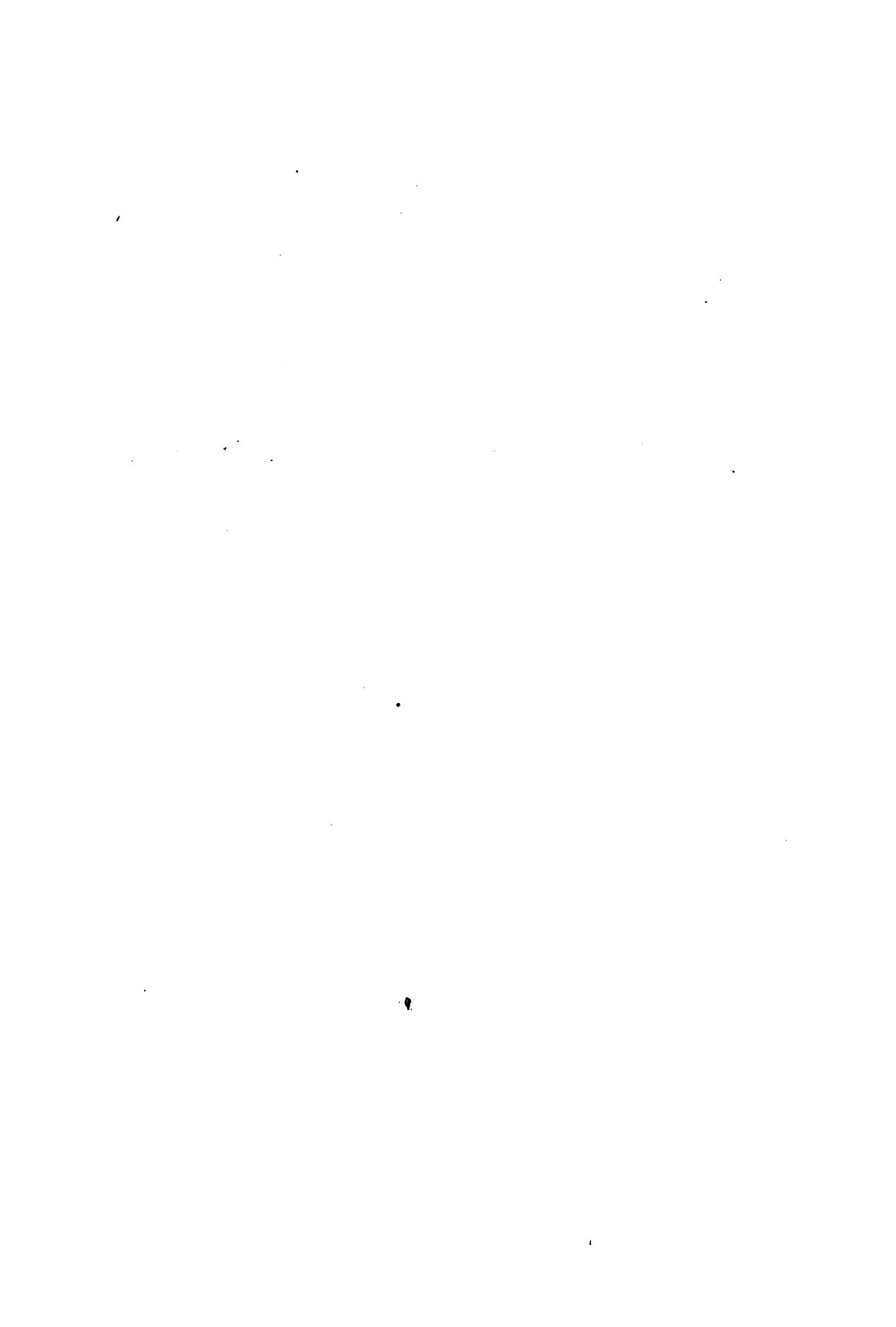
As was stated in the first edition, of the affections discussed in this brochure at least two—Impotence and Spermatorrhœa—are commonly described as functional diseases of the testicles; while, according to my observations, they usually depend upon reflex disturbances of the genitospinal centre, and are almost invariably induced or maintained by appreciable lesions of the prostatic portion of the uretura, which, as they may not be perceived by the patient, are frequently overlooked by the physician. A more extended knowledge of these pathological facts, it is hoped, will afford a more rational and simple basis for treatment.

My aim has been to supply in a compact form practical and strictly scientific information, especially adapted to the wants of the general practitioner, in regard to a class of common and grave disorders, upon the correction of which so much of human happiness depends. In the chapter on Sterility, the abnormal conditions of the semen and the causes which deprive it of its fecundating properties are fully considered—a portion of the work intended to supplement the subject of sterility in the female. From answers to letters addressed to many of the most prominent writers in this country on gynecology, I find that, with few exceptions, the woman alone commands attention in unfruitful marriages. The importance of examining the husband before subjecting the wife to operation will be best appreciated when I state that he is, as a rule, at fault in at least one instance in every six.

S. W. GROSS.

PHILADELPHIA,
1112 Walnut Street, April, 1887.

72809



CONTENTS.

CHAPTER I.

IMPOTENCE.

	PAGE
SECT. I.—General observations—Mechanism of erection—Classification	17-20
SECT. II.—Atonic impotence.	
A. Atonic impotence from hyperæsthesia and inflammation of the prostatic urethra—Etiology—Local effects of masturbation—Masturbation a cause of stricture of the urethra—General effects of masturbation—Classification—Clinical history—Neurasthenia—Diagnosis—Prognosis—Local treatment—General treatment	20-56
B. Atonic impotence without hyperæsthesia of the prostatic urethra—Etiology—Treatment	56-57
SECT. III.—Psychical impotence.	
Etiology—Prognosis—Treatment	57-63
SECT. IV.—Symptomatic impotence.	
From the prolonged use of cerebral sedatives and cerebral excitants—From injuries of the brain and spinal cord—Prognosis—Treatment	63-66
SECT. V.—Organic impotence.	
A. Impotence from abnormal conditions of the penis—From malformations of the penis—From variations in the size of the penis—From adhesion of the penis to the	

	PAGE
scrotum—From distortion of the penis—From induration of the corpora cavernosa—From gummata of the corpora cavernosa—From calcification of the septum pectiniforme, or corpora cavernosa—From retention of a ball in the corpus cavernosum—From shortness of the frenum—From varix of the dorsal vein of the penis	66-74
B. Impotence from defects and disease of the testes—From anorchidism—From cryptorchidism—From loss of the testes—From progressive atrophy of the testes—From syphilitic orchitis—From tumors and tubercle	74-76

CHAPTER II.

STERILITY.

SECT. I.—General observations.

Composition of the semen—Functions of the prostatic fluid—Spermatozoa—Spermatic crystals—Classification—Relative frequency in the two sexes	77-84
---	-------

SECT. II.—Azoospermism.

From bilateral anorchidism—From congenital bilateral deficiency of the epididymis and vas deferens—From failure of the testes to descend into the scrotum—From affections of the testes—From bilateral atrophy of the testes—From parenchymatous orchitis and total disorganization of the substance of the testes—From syphilitic orchitis—From bilateral obliteration of the epididymis and vas deferens—From abnormal conditions of the semen—Sexual excesses a cause of infertile semen—Neurasthenia a cause of infertile semen—General diseases a cause of infertile semen—Abnormal density of the semen a cause of sterility—Purulent semen a cause of sterility—Bloody semen a cause of sterility—Diagnosis—Watery semen—Colloid semen—Catarrhal semen—Prognosis—Treatment	84-109
---	--------

CONTENTS.

vii

	PAGE
SECT. III.—Aspermatism.	
A. Organic aspermatism—From seminal fistulæ—From congenital occlusion, and deviation of the ejaculatory ducts—From stricture of the ejaculatory ducts, and deviation of their orifices—From obstruction of the ejaculatory canals by sympexions—From stricture of the urethra—From phimosis	109-119
B. Atonic aspermatism—Etiology	119
C. Anæsthetic aspermatism—Etiology	121
D. Psychical aspermatism — Etiology — Diagnosis of aspermatism—Prognosis—Treatment	123
SECT. IV.—Misemission.	
From vices of conformation of the urethra—From mal-position of the meatus—Treatment	128

CHAPTER III.

SPERMATORRHŒA.

Classification—Nocturnal pollutions—Diurnal pollutions—Spermorrhagia—Clinical history—Etiology—Anatomical characters—Diagnosis—Prognosis—Treatment	130
--	-----

CHAPTER IV.

PROSTATORRHŒA.

Etiology—Clinical history—Prostatic crystals—Pathological characters—Diagnosis—Prognosis—Treatment	160
--	-----

LIST OF ILLUSTRATIONS.

FIG.		PAGE
1.	Exploratory bulbous bougie	37
2.	Conical steel bougie	42
3.	Urethral dilator	42
4.	Urethrotome	42
5.	Syringe and perforated bulbous explorer	45
6.	Bulbous nozzle	46
7.	Catheter-syringe	46
8.	Porte-caustique	47
9.	Cupped conical steel bougie	47
10.	Porte-remède	47
11.	Psychrophor	54
12.	Spermatozoa	80
13.	Spermatic crystals	From Ultzmann 80
14.	Watery semen	Ibid. 104
15.	Colloid semen	Ibid. 105
16.	Prostatic crystals	162

IMPOTENCE, STERILITY, AND ALLIED DISORDERS OF THE MALE SEXUAL ORGANS.

CHAPTER I.

IMPOTENCE.

SECT. I. GENERAL OBSERVATIONS.

IMPOTENCE, or inability to copulate or perform the sexual act, is one of the most common of the derangements of the generative functions, and is due either to deficiency or absence of erection, or to congenital or acquired abnormal conditions of the genital organs, which render intromission of the penis impracticable. Hence, men who are impotent are usually sterile, the power of procreating children being dependent upon that of having connection; but as sterility, in the strict acceptation of the term, implies nonejaculation, or emission of infertile semen, it will be discussed in a separate chapter.

For a clear comprehension of the pathology of the most frequent forms of impotence, a knowledge of the mechanism of normal erection and of the nervous centres which preside over it is essential.

Erection consists in augmentation of the volume, in stiffness, and in rigidity of the penis, and is due to an increased

flow of blood into that organ, as has been experimentally demonstrated by Eckhard.¹ Lovén,² who extended the investigations of Eckhard, was, however, the first to show, in opposition to former theories, that the essential factor in the phenomenon is active dilatation of the arterioles of the cavernous and spongy bodies, and not merely a stasis of blood produced by constriction of the veins, although it is certain that erection is strengthened by obstruction to the outflow of the blood through the dorsal vein by the contraction of the anterior fibres of the accelerator urinæ muscle or the compressor venæ dorsalis of Houston.

The nerves concerned in the production of erection in the dog, and there is no reason to doubt their existence in man, arise, according to Eckhard, by two roots, at the sacral plexus from the first to the third sacral nerves. Electrical stimulation of these, the erigent nerves, is followed by erection and ejaculation, while their division renders erection and emission impossible. Eckhard, moreover, produced erection by excitation of the lumbar, and lower and upper segments of the cervical spinal cord, the pons, and the crura cerebri, from which he inferred that the fibres of the erigent nerves which convey the impressions for erection arose in the cerebrum, and passed down through the crura and the pons to the cord. Goltz,³ however, discovered that, after the separation of the lumbar segment of the cord from its upper portion, irritation of the glans penis provoked a full erection, from which he concluded that the lumbar cord constituted an independent reflex centre for the genital functions; and, what is important in the study

¹ Beiträge zur Anat. und Phys., Bd. iii. p. 125, Bd. iv. p. 69, and Bd. vii. p. 67.

² Arbeiten aus der Phys. Anstatt zu Leipzig, 1866, p. i.

³ Pflüger's Archiv, Bd. viii. p. 460.

of psychical impotence, he demonstrated that this centre could be acted upon inhibitorily from the brain.

From the preceding considerations it is obvious that erections in the lower animals can be produced by stimulation of the brain, the spinal cord, and the peripheral nerves; and ample observations, both in health and disease, demonstrate that they originate in the same localities in man. The influence of certain emotional conditions of the mind over erection is illustrated by its being induced by sexual desires, or even by the sight or thought of certain women; while it may be arrested or prevented by mental preoccupation, or by depressing emotions, as fear of inability to consummate the venereal act, the loss of the object of one's affections, modesty, disgust, or frigidity. Irritation of the cord, and particularly of its cervical portion,¹ from disease, concussion, effusion of blood, or fracture or dislocation of the vertebræ, frequently occasions erections; and these may constitute the first sign of incipient ataxia,² or general paralysis of the insane, and other spinal affections. As illustrations of erections from peripheral irritation, those arising from the morning fulness of the bladder, from affections of the rectum, and from inflammation of the prostatic urethra and of the seminal vesicles may be mentioned.

The capacity for coition is most marked between the ages of twenty and forty-five years; after which it gradually declines, and usually ceases after the sixty-fifth year. Sexual vigor is, moreover, greatly diminished by bodily exertion, such as gymnastic exercises, and by close mental occupation. Desire is also obtunded by the same causes.

¹ Ollivier, *Traité des Maladies de la Moëlle Epinière*, 3d ed., t. iii. p. 316.

² Rousseau, *Clin. Méd. de l'Hôtel-Dieu de Paris*, t. ii. p. 511; and Erb, Ziemssen's *Cyclopædia*, Amer. ed., vol. xiii. p. 545.

Impotence may arise from diminished or abolished reflex excitability of the genito-spinal centre, or from disturbances of the brain which restrain the action of that centre; or it may be symptomatic of the prolonged use of certain remedies and beverages, or of various acute and chronic diseases; or it may depend upon congenital or acquired defects of the genital organs. In accordance with its etiology it may, therefore, be described as ATONIC, PSYCHICAL, SYMPTOMATIC, and ORGANIC. Of two hundred and sixty-five cases of which I have notes, two hundred and sixty were atonic, two were psychical, one was symptomatic, and two were organic.

SECT. II. ATONIC IMPOTENCE.

When the lumbar reflex centre for erection fails wholly or partially to respond to the ordinary stimuli the resulting impotence may be termed atonic, in the sense that the centre is deficient in activity, mobility, excitability, or tonicity, through which the muscular walls of the arterioles and the muscular fibres of the trabeculæ of the erectile tissues are prevented from relaxing and admitting the requisite flow of blood into the penis, and through which the contractility of the ischio-cavernous and bulbo-cavernous muscles is impaired.

Atonic impotence depends either upon, or is maintained by, inflammation and hyperæsthesia of the prostatic portion of the urethra, or upon diminished or abolished reflex excitability of the genito-spinal centre without the intervention of those lesions. Of the two hundred and sixty cases that

have come under my observation, two hundred and forty-eight were of the former variety, and only twelve of the latter variety.

A.—ATONIC IMPOTENCE FROM HYPERÆSTHESIA AND INFLAMMATION OF THE PROSTATIC URETHRA.

ETIOLOGY.—From independent researches, which were first published in 1877,¹ I long ago reached the conclusion that impotence was generally induced by subacute or chronic inflammation and morbid sensibility of the prostatic urethra, which were frequently associated with stricture, and which were usually due to masturbation, gonorrhœa, sexual excesses, and constant excitement of the genital organs without gratification of the passions. In subsequent papers² I called attention to the fact, previously noticed by other writers, that inflammation of the prostatic urethra bears the same relation to the spinal reflexes of the male that inflammation of the uterus bears to allied disorders in the female, and that it is a constant source of irritation of the genital nerves which terminate in that locality. An enfeebled state of the lumbar division of the cord and exhaustion of the cells that minister to its reflex functions are thus finally brought about.

In sixty-three of the two hundred and forty-eight cases the subjects had been confirmed masturbators, and had also suffered from gonorrhœa, so that it is impossible to say upon which of these factors the trouble depended. Of one hundred and eighty-five patients, however, in whom the history

¹ Medical and Surgical Reporter, May 5, 1877, p. 391.

² Trans. Amer. Med. Assoc., vol. 28, p. 523; and Med. News and Library, Sept. 1880, p. 513.

was clear, one hundred and thirty were masturbators, fifty-one had had gonorrhœa, two had indulged in excessive coition, one had received a blow on the perineum, and one, who had never masturbated nor had gonorrhœa, had fondled women for four years. Just how often prolonged and repeatedly ungratified sexual excitement produced by toying with females, as in Case XXI., is to be considered a cause of the morbid changes which induce or maintain the affection I am unable to say, since young men addicted to this habit indulge their propensities in various ways.

With regard to masturbators who either never had sexual intercourse, or had never contracted gonorrhœa, I have made some notes that are interesting and practically important. Thus, I find that one in every three has an elongated prepuce; one in every five has an inflamed meatus; one in every five has a contracted meatus; one in every two and a half has an exquisitely sensitive urethra; that the same proportion suffers from prostatic or abnormal seminal discharges; one in every eleven has an irritable testis; and that one in every ten has a small, and usually a pointed, curved, and rigid penis. In the papers already referred to I endeavored to show that confirmed masturbation is just as sure to result in urethritis and the formation of a stricture as is gleet; and that the failure to discover this lesion would not have occurred to the majority of writers on this subject if they had resorted to the bulbous bougie for exploring the urethra. Of the one hundred and thirty masturbators who suffered from atonic impotence, and of the one hundred and fifty-three who had seminal incontinence, as will be seen in the chapter on spermatorrhœa, or of two hundred and eighty-three in all, only 35, or 12.3 per cent., were free from stricture, so that a coarctation should always be looked for in this class of subjects. In rather more than

one-half of the cases there is only one stricture, while in the remainder two or more are present. In about three-fourths of the entire number a contraction will be found near the meatus.

As the knowledge of the connection between stricture of the urethra from masturbation and impotence, prostatorrhœa, and seminal incontinence is of the utmost importance in regard to the treatment of these affections, I still further extended my investigations in this direction by an examination of fifty-six onanists in the Insane Department of the Philadelphia Hospital and the Pennsylvania Hospital for the Insane. Of twenty-seven inmates whose histories could be traced back, eighteen declared that they never had gonorrhœa. These were either epileptics, who, when their mental faculties are not enfeebled, are as capable of giving sensible accounts of themselves as others not so affected, or the subjects of chronic insanity or dementia, of whom it is characteristic that, if they remember anything at all, they can recall even the most trifling incidents that may have happened prior to the attack of insanity. In four other instances it was improbable that the patients ever had gonorrhœa, since they had been imbecile from childhood. In the remaining five cases, the question of gonorrhœa could not be entertained, because the subjects were admitted at too early an age, and had afterwards never left the hospital. Their histories are briefly as follows:

CASE I. An epileptic, aged twenty, admitted at the age of ten, had a stricture at six inches, which was defined by a No. 18¹ bulbous explorer.

¹ This and the succeeding measurements are in accordance with the French catheter scale. The calibre, therefore, represents the corresponding number of millimetres in circumference, a millimetre being equal to about the one-twenty-fifth of an inch.

CASE II. An epileptic, aged twenty-three, had been in the house twelve years, having been transferred from the Children's Asylum at the age of eleven. A stricture, calibre 19, was detected at six inches and a half from the meatus, which was contracted; there was a gleety discharge; and the penis was large.

CASE III. An epileptic, aged thirteen, an inmate for three months, suffered from phimosis, with a stricture, calibre 17, at six inches and a half, and very marked prostatic hyperæsthesia.

CASE IV. An epileptic, aged nineteen, admitted at the age of eleven, had a stricture, calibre 19, at six inches, with a very sensitive urethra, and a gleety discharge.

CASE V. An idiot, aged fifteen, an inmate for three years, had a gleety discharge, and a stricture, calibre 18, at five inches and three-quarters.

These five cases, occurring, as they did, in young subjects, in whom the idea of gonorrhœa must be discarded, sustain the view heretofore expressed that organic stricture is a common lesion of masturbation. The coarctations imparted the sensation of a firm, resisting obstacle upon the withdrawal of the bulbous explorer, and were distinctly recognized by my residents, Dr. Murray and Dr. Van Valzah, by Dr. Dease, Dr. Heath, and Dr. Musser.

In addition to my personal observations on the connection between stricture and onanism, Otis¹ states that nine per cent. of all cases are traceable to that practice. Ricord, Phillips, Leroy, Henry Smith, Gouley, and S. D. Gross also mention masturbation as a cause of stricture; and my views are, moreover, supported by the evidence of other authors, who are more explicit in their statements than those just

¹ On Stricture of the Male Urethra. Pamphlet, New York, 1875.

referred to. Thus, Black¹ reports a typical case, associated with hyperæsthesia of the prostatic urethra, for which he was consulted on account of fear of sexual incapacity. In speaking of the etiology of stricture, Wade says: "I have good reason to believe that the pernicious habit of self-abuse is a much more frequent cause of stricture than is generally supposed. In several instances of the kind, in which there has been no sexual intercourse, the strictures, which were at the bulb, proved more than usually refractory, from the extreme morbid sensitiveness of the entire urethral canal." . . . "The complication of spermatorrhœa with stricture and a highly irritable state of the urethra often proves very troublesome, and requires great care and gentleness in its treatment. Such strictures are, in fact, not infrequently caused by masturbation."² Lizars asserts that stricture "is also often produced by self-abuse, since we find, in those affected with spermatorrhœa, that there exists more or less stricture of the urethra, for which it is necessary to dilate the canal before having recourse to the porte-caustique."³ Lallemand⁴ refers to two cases in masturbators who had never had sexual intercourse, in one of which the stricture was very tight and rebellious to treatment. Three-quarters of a century ago, Sir Everard Home, in his work on the subject,⁵ devoted a chapter to "Strictures brought on by Onanism," but he classified them as spasmodic. In thus recognizing spasm

¹ On the Functional Diseases of the Renal, Urinary, and Reproductive Organs. Phila., 1872, p. 196.

² Stricture of the Urethra: Its Complications and Effects. 4th ed., pp. 21 and 318.

³ Practical Observations on the Treatment of Stricture of the Urethra. 2d ed., p. 1.

⁴ Des Pertes Séminales Involontaires, t. i. p. 479.

⁵ Practical Observations on the Treatment, etc., vol. ii. p. 243.

of the urethra as an effect of masturbation, he described the condition which is the forerunner of permanent stricture, since, as is well known, spasmodic contraction is a very common cause of organic coarctation, and is, indeed, not infrequently found in connection with it.

In addition to the foregoing lesions, masturbation may be followed by other local affections, which are due mainly to the extension of the morbid action from the inflamed prostatic urethra. Among the more common of these are irritability of the neck of the bladder, prostatorrhoea, nocturnal seminal discharges, and spermorrhagia. It may also occasion spermato-cystitis, funiculitis, epididymitis,¹ aspermatism² through obstruction of the epididymes or vasa deferentia, wasting of the testes,³ and, as will be pointed out in the next chapter, it is a fruitful source of azoospermism.

While in persons with an inherited predisposition to nervous diseases, as insanity and epilepsy, there is no reason to doubt that onanism may hasten their appearance, I believe that in the majority of cases it should be regarded as an associated habit, or rather as the effect than as the cause of these affections. From the constant occupation of the mind with the local troubles which it induces, it certainly does, however, give rise to a bad form of hypochondrism, which is akin to insanity. Masturbation and sexual excesses are among the most common of the causes of paralytic dementia, and the disorder is supposed to extend upwards from the cord to the brain. An examination of four cases of this affection has convinced me that there is a source of

¹ See Case XV., p. 36.

² Liégeois, *Medical Times and Gazette*, 1869, vol. ii. p. 381; and Terrillon, *Annales de Dermatologie et de Syphiligraphie*, ser. 2, t. i. p. 439.

³ Curling, *Diseases of the Testes*, 4th ed., p. 78; and Brodie, *Lond. Med. and Phys. Journ.*, vol. lvi. p. 297.

reflex irritability of the cord in the urethra. In one, in the second stage, there was a stricture, calibre twenty-one, at seven inches from the meatus. In another instance, in the first stage, there was a large granular patch at six inches and a half, and a gleety discharge. A similar condition was detected at six inches and a quarter, in a man in the second stage; while, in the fourth case, which was far advanced in the third stage, there was also a granular patch at six inches and a half, and the bougie brought away an abundant brownish fluid from the prostatic urethra. In all, hyperaesthesia was a marked symptom. Whether these morbid states served as factors in the production of the disease, or simply hastened and maintained the nervous disturbance, I am unable to decide; but, if the former view be the correct one, functional conditions of the cord should be prevented from passing into organic changes by curing the peripheral sources of irritation in the first stage of the affection, or when the peculiar gait and slight trouble in speech are associated with extravagant ideas. I have never known insanity, dementia, or phthisis to follow onanism, as they are said to do by Krafft-Ebig, Emminghaus, Skae, Ritchie, Esquirol, Pinel, Deslandes, Maudsley, Smith, Acton, Bell, Ray, Spitzka, and other writers, nor have I ever met with the distressing cases described by Lallemand; and I fully agree with Sir James Paget¹ in the statements that "masturbation does neither more nor less harm than sexual intercourse practised with the same frequency in the same conditions of general health, and age, and circumstances," and that the ills which result from it when indulged in by young persons are due more to the "quantity, not the method." Unfortunately, however, it is begun earlier in

¹ Clinical Lectures and Essays, p. 284.

life¹ than coition; and, as it does not require the coöperation of the opposite sex, it can be practised to a greater extent, and at all times, and even when erection is incomplete.

Of the remaining remote causes of atonic impotence, namely, gonorrhœa, toying with females, and sexual excesses, which induce and keep up hyperæsthesia and inflammation of the prostatic urethra, it need only be said that they are followed by precisely the same lesions as are met with in masturbation. In his classical writings on Diseases of the Spinal Cord, Erb² declares that sexual excesses and irregularities occupy a prominent position in the predisposition to, and production of, many spinal affections, among which may be mentioned spinal irritation, neurasthenia, chronic meningitis and myelitis, softening, and inflammation of the anterior horns, or poliomyelitis; and this view is held by many other distinguished authors, as Rosenthal, Hammond, and Romberg.

CLASSIFICATION.—Atonic impotence varies in degree, and may be divided into the following classes:

First. The erection is, as a rule, imperfect and of short duration, and, in two-thirds of the cases, ejaculation is too precipitate, but sexual desire remains, and intercourse is possible, although incomplete.

Second. The erection is either so feeble that intromission is impossible, or it is entirely absent. As in the preceding form, desire is present.

¹ Fleischmann, in the Wiener med. Presse, 1878, p. 9, narrates a case in which an infant began to masturbate at nine months of age, by crossing the legs and setting up rocking motions of the pelvis and body; and Barthez-Rilliet, Marjolin, Von Bambecke, Jacobi, and Morton have recorded examples in young children who were not sucklings.

Loc. cit., p. 147.

Third. In the last phase of the affection, not only is there loss of power of erection, but desire is completely abolished.

Of the relative frequency of these three varieties of impotence, an examination of the two hundred and forty-eight cases previously alluded to shows that two hundred and ten were examples of feeble erection and premature ejaculation; thirty-one were instances of loss of power of erection, with retention of desire; and seven were examples of failure of both erection and desire; so that I have no hesitation in declaring that the first form is more common than impotence from all other causes combined.

CLINICAL HISTORY.—As my readers will gain a better insight into the peculiarities of the three varieties by a narration of cases than by a general and abstract description, I append some typical examples.

CASE VI. A grocer, twenty-two years of age, consulted me on the 12th of October, 1876, on account of impaired erections and premature ejaculation. He began to masturbate at the age of fourteen, and continued the practice for three years. Its abandonment was followed by nocturnal seminal emissions of an intermittent character, that is to say, they recurred almost every night for a fortnight, when there was an intermission of a week's duration. He had been under treatment for two years before coming to me, the effect of which was to improve his general health and materially lessen the frequency of the nocturnal discharges. Up to one year ago he had never had sexual intercourse. At the time he found that erection was incomplete, the gland of the penis, in particular, being soft and inelastic, and that ejaculation took place in a few seconds. The same troubles had existed ever since. During the past two months, nocturnal emissions had occurred from one to five times a week, and he noticed that flakes of mucus, which he supposed to be semen, were discharged in advance of the stream of urine. He was easily fatigued, his hand was unsteady in writing,

he was habitually constipated, and he suffered from dull, heavy pains in the groins and back.

Examination with the bulbous explorer disclosed slight tenderness of the urethra half an inch from the meatus, and decided tenderness at four inches and a half, which increased as the prostatic urethra was reached. On withdrawing the instrument, a stricture, calibre 10, was detected at five inches and a quarter from the meatus. The bulb brought out a whitish fluid, which showed, under the microscope, a large amount of pus and epithelium. The urine was acid, and loaded with lithates, but the genital organs were normal.

I prescribed a laxative pill, to be taken as often as it might be required, warm hip-baths, and warm enemata night and morning, and thirty grains of bromide of potassium every eight hours. The diet was restricted to perfectly bland and digestible articles; sexual intercourse and stimulating drinks were interdicted; and an injection of one drachm of Goulard's extract to ten ounces of water was directed to be thrown into the urethra three times a day.

On the 14th I passed a No. 10 steel bougie, and continued its introduction every second day until the 26th, when it was employed once every twenty-four hours by the patient himself. At first it was immediately withdrawn, but as the sensibility of the urethra became obtunded, it was permitted to remain longer, but at no time more than five minutes. The size was gradually increased, until toward the close of the treatment it reached No. 27. During the first week there were three nocturnal emissions; but from that time until I discharged the patient, on the 3d of December, when his sexual powers were entirely regained, there was only one. I saw this man again early in January, 1877, on account of a chancre, when he informed me that he had experienced no trouble whatever in sexual congress.

CASE VII. A mechanic, twenty-six years of age, states that he has had intercourse with one woman three or four times every night for the past eighteen months, and that he occasionally fulfilled engagements of a similar nature with other females. He had never masturbated much, nor had he ever contracted gonorrhœa. Lately

he has observed that his powers were growing feeble; and at present the erections are flabby, and the ejaculations, when penetration is possible, are precipitate. He looks pale, is easily fatigued, and suffers from pain in the back, and from frequent and painful micturition. A No. 25 explorer detects a very sensitive urethra, and a stricture seated at six inches from the meatus. The neck of the bladder is so sensitive that it contracts when the instrument comes in contact with it, so that its onward progress is momentarily arrested.

CASE VIII. A weaver, thirty-seven years of age, has had gonorrhœa three times, the last attack having occurred fourteen years ago. For the past three years he has noticed that the erections were becoming more and more feeble, until they frequently passed off before intromission, and coition was always attended with hasty emission. In addition to his sexual troubles, he complains of numbness along the outer side of the left thigh, almost constant dorsal pain, and a dull, heavy pain in the back of the head, the left side of the neck, and the left shoulder, all of which localities now and then suddenly become red and hot. The suffering is aggravated by exercise and continuous work; his sleep is unrefreshing, and he has dyspeptic symptoms. He has two strictures, the first of which, calibre 17, is located at three inches and a half, and the second, calibre 15, is six inches from the meatus; and the prostatic urethra is morbidly sensitive.

In the preceding illustrations of the first variety of atonic impotence, the exciting causes were chronic hyperæsthesia and inflammation of the prostatic urethra, which were produced, respectively, by masturbation, by sexual excesses, and by gonorrhœa, and were maintained by one or more strictures. One case was complicated by nocturnal emissions, and another by inflammation of the neck of the bladder; and in all there were symptoms of neurasthenia.

In this form of the affection may be included the condition known as irritable weakness, spasmodic spermatorrhœa,

prospermatism, or spermaspasmos, in which, the erection being more or less complete, ejaculation occurs before penetration, simultaneously with erection, or even before erection. It is most common in men who are much excited on entering upon sexual congress, in pronounced masturbators who suffer from nocturnal pollutions, and in subjects of ungratified desire from toying with women. In the lesser grade of the trouble, the ejaculation is premature only on the first attempt at intercourse, the succeeding ones being properly completed. Some of these points are illustrated by the following cases :

CASE IX. A merchant, thirty-seven years of age, had masturbated up to his eighteenth year, and has been in the habit of toying with women ever since. At his first attempt at connection, which took place when he was twenty-nine years old, he found that the erection was imperfect, and that ejaculation occurred before, intromission ; and he stated that these troubles still continued. There was a stricture, calibre, 18, at six inches from the meatus, and the prostatic urethra was exquisitely sensitive.

CASE X. A clerk, thirty years of age, brought me a specimen of urine for examination, which I found to contain an abundance of motionless spermatozoa, oxalate of lime, and a few pus corpuscles and epithelial cells. He never had gonorrhœa, but he had masturbated from his sixteenth to his twenty-first year, on an average, twice a day. There was a constant sticky feeling at the meatus, and he informed me that for the past three years, whenever he attempted sexual intercourse, he had an erection, with a simultaneous emission. The hands and feet were habitually cold, and he had no knowledge of nocturnal emissions for five years. The explorer detected a stricture, calibre 17, at six inches and a half from the meatus, and there was marked hyperesthesia of the prostatic urethra.

CASE XI. A physician, thirty-four years of age, had masturbated from his fifteenth to his seventeenth year, and had contracted gonorrhœa eleven years ago. For ten years he was unable to have connection, in consequence of ejaculations at the moment of penetration; and for the past three years emission occurred before erection, and he had nocturnal pollutions from two to three times a week. The meatus would admit only a No. 17 explorer; but after its enlargement, a stricture, calibre 25, was discovered at six inches and one-eighth, and the prostatic urethra was very sensitive.

The subjoined illustrations are good examples of the second variety of impotence, or of that in which desire is retained, but in which the power of erection is lost, and coition is impossible.

CASE XII. A tavern-keeper, thirty-two years of age, of robust frame, stated that he was engaged to be married in six weeks; that he could not command an erection, although he had sexual desires; that the presence of the object of his affections, and the most lascivious books and pictures, which formerly brought on an erection, had lost that effect; and that the thought of his disability on his wedding-night was constantly preying on his mind. This condition of affairs had existed for five months, during which time he had nocturnal seminal emissions about twice a week. He was, moreover, much alarmed at the presence of some shreds of purulent mucus in his urine, which he thought was seminal fluid. He had three attacks of gonorrhœa, the last of which occurred seven years ago, since which period he has always had a slight gleety discharge, and for the past few months a dribbling of a few drops of urine in his clothes after the act of micturition was apparently completed. He suffered from habitual constipation, but in other respects he was the picture of health.

The bulbous explorer defined two strictures, calibre 23, located, respectively, at six inches, and at six inches and a half, from the external meatus, as well as marked hyperæsthesia of the prostatic urethra.

CASE XIII. A mechanic, twenty-three years of age, at about his sixteenth year, after having been in the habit of masturbating freely for six or seven years, observed a urethral discharge. He had never had sexual intercourse until he was twenty-one; and, after a few months of moderate indulgence, the discharge had increased, and the erections had become more and more weak, until he was finally unable to consummate the act, although the desire remained. He is pale; suffers much from pain in the back, the shoulders, the anus, and the left temporo-maxillary articulation; and is easily fatigued.

Examination with a No. 25 explorer disclosed intense hyperesthesia of the entire urethra, and particularly of its prostatic portion, but there was no indication of a stricture. As soon as the instrument entered the passage it occasioned tremor and retraction of the testes, and when it reached the prostatic portion he shrank from the excessive suffering which it awakened, and the muscles of the lids, nose, and mouth twitched convulsively. On its withdrawal, the bulb brought away a considerable prostatic discharge. He afterwards rode to his house in the street cars, and about two hours later, after urinating, he was seized with a curious crawling sensation in his arms and legs, lost consciousness, and, when found by his friends, was lying on the floor, and his face was livid. Three days subsequently, he was placed upon thirty grains of bromide of potassium, with five drops each of juice of belladonna and tincture of gelsemium, every eight hours, and directed to take ten grains of quinia one hour before his next visit, which occurred one week ago. At that time a conical steel bougie was passed, and one-third of a grain of morphia thrown under the skin. A slight epileptoid paroxysm, as indicated by clonic spasms of the muscles of the arms and eyelids, and a feeling as if he would become unconscious, ensued; and these symptoms were followed by prostration and numbness of both hands.

In the third phase, or as it is sometimes called the paralytic form, of the affection, erection and desire are completely abolished, as is illustrated by the following instances:

CASE XIV. A medical student, twenty-four years of age, had masturbated excessively for six years, and for the past two years, during which period he had discontinued the practice, had nocturnal seminal emissions, on an average, twice a week. When I saw him he stated that he had lost all desire, and had been unable to command an erection for three months. He was very watchful of a gleety discharge, and brought with him, for my inspection, a specimen of urine which contained little threads of mucus, which he imagined to be semen. His general health was broken; his expression was woe-begone; he was gloomy, shy, and reserved, and unable to fix his attention upon his studies, and easily fatigued. He was constantly thinking of his previous bad habit and the nocturnal emissions, and was convinced that his condition was beyond relief. In a word, he was a victim of sexual hypochondrism.

The external genital organs, and the prostate and seminal vesicles, as far as rectal touch enabled me to form an opinion, were perfectly normal; but the urinary meatus was constantly moist, and its lips were red and pouting. At five inches and three-quarters from the meatus I detected a stricture, calibre 17, and also found that the urethra behind it was extremely sensitive. Placing a little of the fluid, which was withdrawn by the explorer, under the microscope, I demonstrated to my patient that it was free from spermatozoa, and I still further endeavored to gain his confidence by assuring him that his disability was temporary, since, from its dependence upon appreciable lesions, it could be cured. Under appropriate treatment, in three weeks, the pollutions had decreased in frequency, the prostatic discharge had lessened in quantity, the hyperæsthesia had notably diminished, and he had begun to have feeble erections. At the expiration of a month I divided the stricture, and he went with me to the seashore. In three weeks, or eleven weeks from the commencement of the treatment, he had good erections, and his mental anxiety was calmed, but, unfortunately, he desired to test his powers, and had an almost instantaneous ejaculation with cessation of erection. This act, which he undertook entirely on his own responsibility, undid all the good I had effected; and it was only after the expiration of eight months that he finally recovered under the employment of galvanism.

CASE XV. A druggist, twenty-four years of age, came to me on account of vesical irritability, under which he had labored for six years. He has never had sexual intercourse, but had masturbated from boyhood until his twentieth year, and desire and power of erection had been abolished for nearly four years. The entire urethra and neck of the bladder were excessively sensitive, and a stricture, calibre 17, was detected at six inches and one-fifth from the meatus, which measured thirty-three millimetres in circumference. The epididymes, but especially the right, were enlarged and indurated.

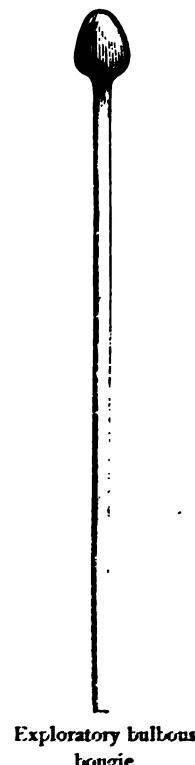
In the majority of cases of atonic impotence which I have inserted for the purpose of illustrating the various phases of the affection, in addition to the lesions of the urethra, it will have been perceived that certain subjective symptoms were present, which were indicative of spinal exhaustion, the depressed form of spinal irritation, or neurasthenia. Prominent among these signs are pain in the back, which is increased by exercise, exposure to atmospheric vicissitudes, and attempts at coition, and muscular weakness of the limbs, so that the subjects are tired out by comparatively slight exertions and walking. These symptoms point, to use a term introduced by Beard,¹ to myelasthenia of the lumbar division of the cord. In a certain number of examples, as in Case VIII., there is dull, heavy pain in the frontal region, the back of the head, the neck, and shoulders, which now and then become flushed, signs which are indicative of exhaustion of the upper portion of the cord. In other instances, the symptoms are those of cerebrasthenia, such as impairment of memory, mental debility, depression, anxiety, or irritability, a feeling of fulness in the head, asthenopia, and other disorders of the special senses; all

¹ A Practical Treatise on Nervous Exhaustion, 2d ed., p. 106; and Medical Record, 1879, vol. i. p. 184.

of which are signs of enfeeblement of the functional power of the brain, and which may be readily explained by the commissural connections between the lumbar division of the cord and the higher centres. In other cases, again, the symptoms are variously interwoven; and in all troubled and unrefreshing sleep, a feeling of heaviness on rising, coldness of the hands and feet, poor appetite, coated tongue, flatulence, a sense of weight in the epigastrium after eating, palpitation of the heart, sick headache, vertigo, and constipation, are very common. In addition to the various phenomena of neurasthenia and dyspepsia, nocturnal emissions and prostatorrhœa are frequently met with.

DIAGNOSIS.—The diagnosis of atonic impotence is readily made from a consideration of the preceding observations. In all cases the urethra should be examined with the view of determining the presence or absence of lesions which induce or maintain the disorder. For this purpose, the exploratory, or acorn-headed, soft bougie, represented in Fig. 1, should be resorted to, as it is the only instrument with which granular patches and strictures of large calibre can be accurately defined, and with which morbid discharges can be withdrawn for minute examination. One being selected which fills, without unpleasantly stretching, the meatus, it is well oiled and inserted as far as the bladder. If there be a coarctation, its introduction

FIG. 1.



Exploratory bulbous bougie.

will be arrested, when smaller sizes are successively employed, until one will pass without difficulty. On its withdrawal, the abrupt shoulder of the bulb coming in contact with the posterior face of the obstruction imparts to the touch a sensation as if it had jumped over a narrow band, which is as perceptible to the patient as it is to the surgeon, and is very different from the sensation conveyed by spasm. In the latter, the instrument may be grasped for a time, but the muscular contractions soon cease, or may be made to cease by carrying the bulb several times through the obstruction; while a granular patch gives the impression of a limited roughness of the canal.

Hyperæsthesia of the urethra is readily detected by the ordinary metallic bougie, catheter, or sound; and its existence should never be based upon the passage of the soft explorer alone, as the insertion of that instrument is productive of far more pain than the ordinary nickel-plated bougie. If the surgeon should deem it desirable, he may confirm his diagnosis by a resort to the endoscope, with which Grunfeld¹ has discovered hyperæmia and catarrhal swelling of the verumontanum in cases of impotence, prostatorrhœa, and spermatorrhœa. I myself never employ it, nor do I think that any additional information is to be gained from its use.

In the absence of proper instruments for exploring the urethra, the general practitioner may suspect inflammation and morbid sensibility if there be painful and frequent micturition, painful ejaculation, a feeling of weight in the anorectal region, a gleety discharge, prostatorrhœa, abnormal nocturnal emissions, and sensibility of the prostate on pressure with the finger in the rectum.

¹ Endoskopische Befunde bei Erkrankungen des Samenhügels. Wien, 1880.

PROGNOSIS.—The milder forms of impotence are very amenable to treatment, as is illustrated by the following example :

CASE XVI. A carriage-builder, twenty-three years of age, came to me on the 8th of April, 1880, on account of a gleety discharge, which kept the lips of the meatus glued together, and had existed for two years and a half; of a discharge of prostatic fluid at stool; and of nocturnal seminal emissions, which were often as frequent as every night during a single week, now and then occurring to the number of three in a night, and averaging three a week. The erections were feeble, and ejaculation was premature. The bowels were costive, but he had no signs of spinal exhaustion. Examination with a No. 17 explorer disclosed a stricture one-eighth of an inch behind a contracted meatus, and a highly sensitive urethra, especially in its membranous and prostatic divisions. On withdrawing the instrument, a few drops of prostatic fluid came away. I laid open the meatus along with the stricture, and directed a pill composed of two grains of compound extract of colocynth and half a grain of extract of *nux vomica* at bedtime, along with the one-sixtieth of a grain of atropia in solution, and thirty grains of bromide of potassium every eight hours. The incision was prevented from closing by the passage of a No. 30 conical steel bougie, which was carried through the entire urethra every other day. On the 6th of May, the hyperaesthesia had almost entirely disappeared; the gleet had ceased; there was merely a slight prostatic discharge, if the bowels were allowed to become constipated, but he had not noticed it for several days; there were nocturnal emissions on the nights of April 17 and 18, and the erections were improving in vigor. The treatment was continued, and a cure was effected in another month.

This case is not a selected one; and whenever a patient presents himself who has erections and desire, even if he has a prostatic discharge, or too frequent nocturnal pollutions, or is suffering with both of these complications, the

surgeon will be perfectly justifiable in promising relief. In the second variety of the affection, in which desire remains, but in which the erections are so feeble that penetration is impossible, or are entirely absent, it is not uncommon for the man to have an erection and emission under the influence of a voluptuous dream, thereby showing that the sexual instinct is not entirely lost. In such a case as this the prognosis is also favorable, although the patient will have to remain longer under treatment. When both desire and erection are abolished, and the man is suffering from hypochondrism, the outlook is bad, particularly if we cannot gain his confidence, and he is not open to moral treatment. In this class of cases, if there is neither hypochondrism nor neurasthenia, the prognosis is good. In Case XII., which was an example of the latter condition, I divided the strictures on the 11th of September, and placed the man upon bromide of potassium and tincture of veratrum viride, a laxative pill, as it might be required, warm sitz-baths, and a restricted diet, and enjoined abstinence from everything which was calculated to excite the genital organs. He married on the 6th of November, having in the meanwhile passed a No. 32 conical steel bougie every twenty-four hours until the tenderness of the prostatic urethra had disappeared, and he wrote me five days subsequently that he had had connection every night. I cautioned him against committing such marital excess, lest sexual abuse might cause a relapse.

The prognosis is not so good when the disorder arises from excessive onanism commenced early in life by nervous, impressionable boys. When impotence is developed after the age of forty, the patient should be made to understand that his pristine vigor can scarcely be expected to be

restored, since the power to copulate naturally diminishes at that age.

TREATMENT.—In the management of atonic impotence, a thorough examination of the genital and associated organs should be made, with a view of getting rid of the causes which produce and maintain it. If the patient has a redundant prepuce, it should be removed; if the meatus be contracted, it should be enlarged; while herpes of the prepuce and glans, or balanitis, should be treated in the usual way. All of these lesions are capable of setting up hyperæsthesia of the prostatic portion of the urethra, or even of exciting reflex impotence without the intervention of prostatic trouble, and their relief is quite sufficient in mild cases to bring about a cure. The same statement is true of certain diseases of the bladder and rectum, so that these viscera should not be overlooked.

Atonic impotence usually occurs in robust subjects, in whom inflammation and morbid sensibility of the prostatic portion of the urethra have set in before the signs of myelasthenia are pronounced, the usual symptom, according to my experience, being pain in the back. Hence the treatment, whether this be local or general, must be of a sedative nature; and the patient, at the outset, should be impressed with the importance of avoiding all sources of sexual excitement, such as masturbation, attempts at intercourse, dalliance with women, and lascivious thoughts and literature; and if his sexual propensities are marked, they should be kept under control by mental application and gymnastic exercises.

Of the *local measures* to overcome hyperæmia, inflammation, and hyperæsthesia of the prostatic urethra, not one is so universally applicable as the passage of the nickel-plated

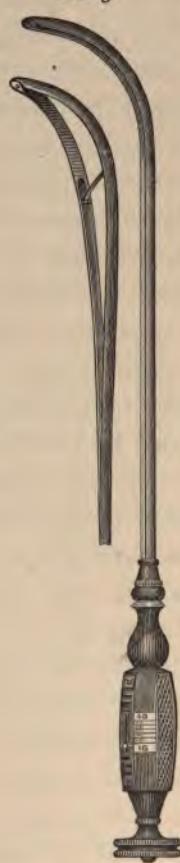
conical steel bougie represented in Fig. 2. The size of the instrument is to be gauged by that of the meatus, if it be normal, or by that of the stricture, if one be present, and

FIG. 2.



Conical steel bougie.

FIG. 3.



Author's urethral dilator.

FIG. 4.



Author's urethrotome.

its circumference should be gradually increased up to that of the full capacity of the urethra, as indicated by the urethrameter. To effect this, however, the meatus will have

to be enlarged as a preliminary measure; or, instead of this, my urethral dilator, represented in Fig. 3, which dispenses with the operation, may be employed, although it is much less efficacious than the bougie. At first the bougie should be at once withdrawn, and the intervals between the insertions should be seventy-two hours. With the decrease of the sensibility it should be retained longer, and the intervals of introduction be shortened until it is passed daily.

If the case is complicated by an irritable or resilient stricture, it should be subjected to internal division from behind forward, as no progress can be made unless the contraction is a simple one. For this purpose, I prefer the instrument devised by myself several years ago, as I have found from ample experience that its simplicity of construction and perfection of action leave nothing to be desired. The essential part of the contrivance is its acorn-headed distal extremity, through which the situation of the coarctation is accurately determined. To use the exploratory urethrotome, the stricture having been passed, and its posterior face having been defined by the projecting shoulder of the bulb, the bulb is carried at least half an inch toward the bladder, as the object is to divide, along with the contraction, the sound tissues to that extent behind and in front of it; then the blade is protruded, as in Fig. 4, and the parts cut as the instrument is withdrawn, the penis being put upon the stretch to render the urethra tense. In the event of the tissues being thick or resistant, the section may be materially aided by counterpressure with the fingers of the left hand along the median line. The bulb is then used as an explorer to detect any undivided bands, which, if discovered, should be severed, since thorough section of all narrowed points is essential to success. In regard to

the subsequent treatment, I need only refer to my views published elsewhere,¹ as its consideration would be out of place here.

It now and then happens, as in Case XIII., that the entire urethra is so excessively sensitive that the introduction of the bougie is followed by an epileptoid paroxysm, or that the patient faints. Under the circumstances, it is more judicious to desist from its use until the sensibility of the passage has been obtunded by the injection, every eight hours, of three grains of chloral, and ten grains of bromide of potassium to the ounce of water, and by the internal exhibition, at the same intervals, of thirty grains of the bromide, ten drops of tincture of cannabis indica, and five drops of tincture of gelsemium, and by sitz-baths of water as warm as it can be borne. It will also be wise to throw into the deep urethra, about ten minutes before inserting the bougie, a drachm of a four per cent. solution of cocaine, with the instrument delineated in Fig. 5, the bulb being passed just beyond the compressor urethrae muscle.

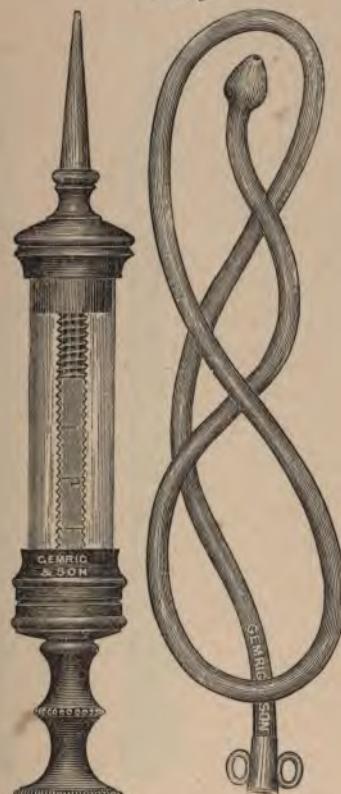
In many instances it will be found that the inflammation and hyperaesthesia are finally reduced to a small and probably granular, patch, which proves rebellious to the bougie, but which usually disappears under the application of astringent remedies. Of these, I prefer a solution of nitrate of silver, carried to the tender spot by a contrivance which is essentially that of Felix Guyon,² and which, as is shown in Fig. 5, consists of a syringe of the capacity of rather less than a drachm, and of an ordinary bulbous explorer perforated at the apex of the bulb. The syringe having been

¹ Gross on the Urinary Organs, 3d ed., p. 480; Med. Record, June 15, 1878, p. 461; and Trans. Med. Soc. State of Penna., vol. xii. part i. p. 67.

² Bull. Gén. de Thér., 1867, p. 501.

charged with the solution, and its nozzle attached to the explorer, pressure is made upon the piston, until a drop of the fluid appears at the small opening. Wiping this off, the oiled instrument is then carried down until the bulb defines

FIG. 5.

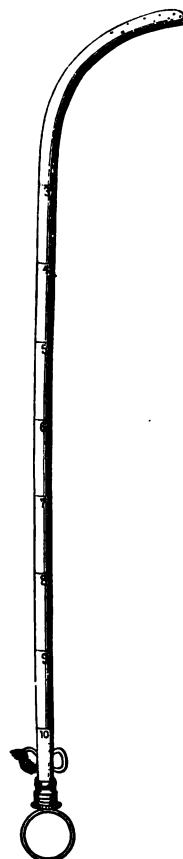


Syringe and perforated bulbous explorer.

the inflamed patch—and it does this with the greatest accuracy—when it is slightly withdrawn, and a few drops are deposited in the urethra. The bladder should be evacuated before the application of the instrument, and the

patient should be kept in bed and use demulcent drinks for a few hours subsequently. With these precautions, the pain and desire to urinate will usually not last more than

FIG. 7.



Dick's catheter-syringe.

FIG. 6.



Bulbous nozzle.

thirty minutes, but there will be some scalding during the next act of micturition. When I first adopted this practice, about sixteen years ago, I employed ten grains of the salt to the ounce of distilled water, at intervals of one week;

but from an extended experience, I now commonly use thirty grains, and repeat the injection every four days.

As the soft, perforated, bulbous explorers are not easily procured in this country, and as they are liable to wear out,

FIG. 8.



S. D. Gross's porte-caustique

FIG. 9.



Cupped conical steel bougie.

FIG. 10.



Harrison's porte-remède.

I have had constructed a curved hard-rubber attachment for the syringe, which is eight inches long, and which is

provided, as is shown in Fig. 6, with an acorn-shaped head or bulb. This instrument is not quite so good in regard to accuracy of definition of the inflamed patch as the preceding one, but, with that exception, it constitutes the best of the contrivances for the purposes to which it is adapted.

In the absence of the foregoing instruments, Dick's catheter-syringe, Fig. 7, may be employed; or the cup attached to the stylet of Gross's *porte-caustique*, Fig. 8, may be charged with five grains of nitrate of silver to the drachm of ointment of stramonium, which I regard as far preferable to the fused salt, as the latter exerts a destructive action on the mucous membrane unless the cauterization is lightly performed. The glycerole of tannin, applied by means of a sound, Fig. 9, having a cup at the convexity of the curve, just anterior to the shaft, frequently answers a good purpose. The depression filled with the solid mass is kept in contact with the inflamed patch for a few minutes, or until it is melted by the heat of the parts; but this mode of medication is open to the objection that some of the liquefied paste is deposited along the whole length of the urethra during the withdrawal of the instrument.

Another excellent mode of applying astringents is by the deposition of small soluble suppositories of cocoa butter in the affected portion of the urethra by means of the modified *porte-remède* of Harrison, of Liverpool, shown in Fig. 10. The instrument consists of a metallic catheter, open at the end for the reception of the suppository, which is so shaped as to form a bulbous extremity for the instrument. The exposed surface is hardened by a layer of spermaceti, so as to prevent its becoming dissolved in passing down the urethra. For ordinary use the suppository may contain a quarter of a grain of nitrate of silver, or two grains of tannin, or half a grain of acetate of lead.

When the affection proves to be more obstinate, I have found that flying blisters, made by pencilling cantharidal collodion first on the one side of the perineal raphé, and, after the surface has healed, on the opposite side, are of the utmost value. The agent should be applied in the morning, as it is liable to prevent sleep, and great care should be taken to avoid vesication of the scrotum and anus.

Of *general remedies*, the aphrodisiacs, as cantharides, phosphorus, phosphide of zinc, strychnia, and damiana, are to be studiously avoided, since the parts are to be kept still further at rest by the administration of agents which diminish the reflex excitability of the cord and suspend sexual desires and the power of erection. Of the remedies of this class, bromide of potassium is by far the best, as it not only blunts the venereal appetite, but corrects the acidity of the urine, and exerts an anæsthetic influence upon the mucous membrane of the urethra. I am in the habit of administering thirty grains of the salt every eight hours, unless I find that it makes the patient drowsy during the day, when I order a drachm to be taken at bedtime. If it is not well borne, as is indicated by physical and mental languor, weakness of the heart, pallor, uncertain gait, acne, and other signs of bromism, its use must be discontinued for a time; or its cumulative action must be prevented by promoting its excretion by the urine by combining with it a diurectic, as ten grains of nitrate or bitartrate of potassium, as recommended by Rosenthal;¹ this combination is far better than that with Fowler's solution, which is devised by Gowers and Bartholow.² When the patient is anæmic, I prefer to administer a drachm at night, and give him three

¹ Wiener Klinik, May, 1880, p. 159.

² Materia Medica and Therapeutics, 3d ed., p. 406.

grains of quinine along with twenty-five drops of the tincture of the chloride of iron three times during the day. My own empirical observations in regard to the value of quinine in decreasing the depression produced by the bromides in asthenic subjects have been confirmed by Dr. Landon Carter Gray,¹ who has shown that it not only increases the sedative effects of the latter, but that it diminishes or dispels bromism.

When the patient is robust and plethoric, I frequently add to each dose of the bromide ten drops of the tincture of veratrum viride or tincture of gelsemium; or the bromide may be given in half an ounce of the infusion of digitalis; and I have every reason to be pleased with the action of the combinations. Instead of the bromide of potassium, the monobromide of camphor may be employed to the extent of about twelve grains in the twenty-four hours, but its effects are not so striking as those of the former remedy.

When the penis is cold and rigid, atropia is indicated to overcome the contraction of the muscular fibres of the trabeculae of the erectile bodies, and to induce the dilatation of the arterioles and an increased flow of blood through the organ; and its good effects are also evinced by the diminution of the number or the entire cessation of the nocturnal emissions and prostatic discharges which frequently complicate the affection. One-sixtieth of a grain in solution should be administered on rising; and when its peculiar action is denoted by dryness of the mouth, thirst, dilatation of the pupils, and slight confusion of vision, that quantity should be taken on retiring, so that the patient may sleep through its disagreeable effects.

¹ Archives of Medicine, October, 1880, p. 191.

Of the remaining anaphrodisiacs, which have been recommended in the management of impotence, camphor and lupuline cannot be relied upon; while arsenic evinces its depressing action on the sexual functions only when administered in such large doses as to occasion objectionable disorders of the circulatory, digestive, and nervous systems.

Among the accessory measures I know of none that is more grateful to the patient, and more relaxing and soothing to the irritable organs, than a sitz-bath at a temperature of about 95° F., taken for fifteen minutes every morning and evening. In the absence of facilities for bathing, a sponge dipped in water at a temperature of about 100° F. may be applied to the perineum and the back. Cold baths, which are recommended by many authors, are to be studiously avoided, as they aggravate the local troubles.

In a large proportion of cases the bowels are habitually constipated. They should be kept in a soluble condition, particular attention being paid to the rectum. For this purpose, tepid water may be injected every morning, as it has the additional advantage of soothing the hyperæsthetic prostatic urethra. If enemata do not answer the purpose, and if there is atony of the muscular coat of the intestines, a pill composed of one-twelfth of a grain of aloin, one-sixth of a grain of extract of *nux vomica*, and one-fourth of a grain of extract of *hyoscyamus* may be administered after each meal; or a wineglass of Hunyadi or Friedrichshall water, or two drachms of equal parts of Epsom and Rochelle salt, may be ordered every morning.

Any special dyspeptic symptoms are to be met by appropriate remedies. The diet should be nutritious and digestible, but unstimulating; and coffee, malt, and alcoholic liquors must be eschewed, and the last daily

meal should be light. The patient should sleep on a hard mattress, use only the lightest coverings, and empty his bladder thoroughly on retiring, and early in the morning if a more or less complete erection indicates fulness of that viscus. He is, moreover, to be warned against horseback exercise and driving over rough streets, and all other forms of amusement which tend to produce hyperæmia of the genitalia, as well as against bodily and mental fatigue if the signs of spinal and cerebral neurasthenia be marked.

Up to this point, the treatment, both local and general, has been addressed to relieving the inflammation and hyperæsthesia of the prostatic portion of the urethra. When this has been accomplished, abundant observation has convinced me that nothing more, as a rule, is required. Cases, however, do occur in which, after the local lesions have been cured, the irritability of the genital centre is still so exhausted that the erections are not sufficiently vigorous, and the ejaculations are premature. Under these circumstances, as well as in the rarer form of atonic impotence, in which the prostatic urethra is devoid of lesions, but in which a stricture, if one be present, will require preliminary treatment, the object is to restore the sexual powers to their normal condition by remedies which tone up the system at large and excite the reflex activity of the genito-spinal centre. An excellent combination is twenty-five drops of the tincture of the chloride of iron, ten drops of tincture of nux vomica, and two grains of quinia, to be taken before meals in a wineglassful of sweetened water, which may be replaced by the syrup of the phosphate of iron, quinia, and strychnia, in teaspoonful doses, or by the following combination, which is probably more efficacious than either of the preceding ones :

R.—Quiniæ sulph.,
Ferri sulph., $\frac{aa}{3}$ ij;
Zinci phosphidi, gr. ij;
Strychniæ sulph., gr. $\frac{3}{4}$.

M.—Ft. pil. no. xl.
S.—Two pills every eight hours.

The fluid extract of damiana, in doses of from two to four drachms every eight hours, is said by Caldwell,¹ of Baltimore, to be a capital tonic to the nervous centres which preside over erection, and his observations are confirmed by Edwards,² of Richmond.

Among the tonic agents cold sitz-baths and cold applications to the lumbar region for about ten minutes hold a high position. At the commencement it will be wise to employ water at a temperature of 60° F., and gradually to lower the temperature until it is finally reduced to 46° F. The efficiency of the remedy will be heightened by gently projecting a stream of cold water against the perineum and back; and one of my patients informs me that he has derived the best results from douches of moderate volume after emerging from a Turkish bath. To promote reaction and increase the flow of blood to the lower divisions of the spinal cord and the genitalia, the parts should be briskly rubbed after they are dry with a moderately coarse towel or with a flesh-brush.

Cold may be applied directly to the prostatic portion of the urethra by means of the cooling sound or psychrophor of Winternitz,³ represented in Fig. 11, which is nothing more than a double current eyeless catheter closed at its beak. To the proximal extremities of this rubber tubes are attached, through one of which the fluid flows into, and

¹ Virginia Med. Journal, 1879, p. 444.

² Ibid., p. 716.

³ Ziemssen's Hdbch. der Allg. Ther., Bd. 11, Theil 3, 1881, p. 238.

through the other out of the instrument. The former, provided with a stopcock, is connected with a rubber bag suspended a few feet above the patient, while the latter is received in an empty vessel placed at the patient's feet. At the outset, the temperature should be about 57° F., and be gradually reduced to 52° F., and the sittings be lengthened from five to ten minutes. The device has been found to be the most beneficial when the ejaculations are too precipitate.

Galvanism very deservedly enjoys a high reputation in the treatment of impotence. Not only are the electro-tonic effects of the constant current valuable in increasing the excitability of the genito-spinal centre, but galvanization is far more serviceable in restoring the tonicity of the arterioles of the erectile tissues of the penis, and in increasing the amount of blood flowing in them, than are the measures to which I have just alluded. Although the dose of the current cannot be accurately prescribed by the number of elements of the battery, the quantity generated by from fifteen to twenty

cells will, as a rule, be found to answer the purpose. The anode, or positive electrode, which should be of large size, is placed over the lumbar spine, and the cathode carried over the gland and back of the penis, the cords, testes, and perineum. The sittings at first should be limited to two or

FIG. 11.



Winternitz's psychrophor.

three minutes every forty-eight hours ; but they may soon be lengthened to five minutes daily. In obstinate cases, particularly if they are complicated by prostatic or seminal discharges, an insulated catheter negative electrode may be passed down to the prostatic urethra, while the anode is applied to the back, groin, or perineum, or it may be replaced by the rectal reophore. Great caution must, however, be observed in the employment of the urethral electrode, lest it awaken inflammation of the urethra, or neuralgia of the testis or cord, or even induce suppuration of the testis, as I have known to happen in one instance from the use of too strong a current. In all cases it will be wise for the operator to begin with from three to five cells, and to test the current by passing it through his own temples, and cautiously to increase the number of elements to fifteen,¹ if pain is not excited. In the third or paralytic variety of the affection, or in the other varieties, if galvanism does not bring about the desired result, faradization of the erector muscles of the penis and the accelerator muscle of the urine is frequently highly serviceable. If this method fails, the interrupted current may be passed through one reophore in the urethra to the other, placed on the perineum and the genitalia, or inserted in the rectum ; while some cases will improve more rapidly if local faradization and galvanization of the cord are employed on alternate days. When the skin of the penis is deficient in sensibility, the electrical brush is indicated. Central galvanization² and general faradization are beneficial when the symptoms are those of cerebral and spinal exhaustion.

In addition to the foregoing measures, a change of air,

¹ Althaus, *Medical Electricity*, 3d ed., p. 671.

² Beard and Rockwell, *Med. and Surg. Uses of Electricity*, 3d ed., p. 376.

travel, exercise, amusement, sea-bathing, good food, and a glass of generous wine will do much to give tone to the parts, and the system at large.

The end having been accomplished, it remains to put the patient on his guard against marital excess, for unless he practises moderation he is liable to a relapse. In a large proportion of cases the trouble is met with in young men who are engaged to be married. Under these circumstances matrimony should not be delayed, as regular and temperate intercourse tends to promote sexual quietude. When marriage is not contemplated, the patient should lead a continent life, and avoid all sources of sexual excitability.

B.—ATONIC IMPOTENCE WITHOUT HYPERÆSTHESIA OF THE PROSTATIC URETHRA.

Imperfect or deficient erection may arise independently of any lesion of the prostatic portion of the urethra in persons of nervous or sensitive temperaments, a class of subjects in whom diminished reflex excitability of the lumbar genital centre appears to be induced before prostatic inflammation has had time to declare itself. In the preceding form of impotence the patients are, as a rule, robust and strong, and inflammation and hyperæsthesia of the deep urethra are set up before the functions of the genital centre have been much impaired.

Of the twelve cases that have come under my notice, eight were due to excessive masturbation, two to gonorrhœa and masturbation, and two to gonorrhœa alone. In nine a stricture was detected, while three were free from that complication, and the prostatic portion of the urethra was not morbidly sensitive in a single one. In eight of the

cases the erections were feeble, and the ejaculations were precipitate; and in four intercourse was impossible, although desire was retained.

The treatment of this variety of atonic impotence is the same as that directed for the preceding form after the hyperæsthesia has been remedied.

SECT. III. PSYCHICAL IMPOTENCE.

Impotence from the restraining or inhibitory control of the brain over the genito-spinal centre is infinitely less common than the preceding variety; but that erection may fail or cease under the influence of excitement, depressing or other emotions, or mental preoccupation, is a fact with which every one is familiar. Thus newly married men, who were previously potent, and had never indulged in sexual or unnatural excesses, are liable to be troubled in this way, the undue stimulation of the passions at their first efforts at coition having the effect of causing the erection to cease before the act is completed, or of rendering it so feeble that penetration is impossible, or of precipitating emission, or of preventing erection altogether. Grimaud de Caux¹ relates the case of a mathematician in whom erection failed before emission, because his thoughts wandered toward the solution of an abstruse problem. Onimus and Legros² refer to a young man who remained impotent

¹ *Physiologie de l'Espèce*, p. 341.

² *Traité d'Electricité Médicale*, p. 215.

for years after having been surprised at the moment of connection by the husband ; and Roubaud¹ met with a man who had been unable to command an erection during the six months following a railway accident in which he was terribly frightened. The death of a beloved child or wife, as in the cases of Roubaud² and Ultzmann,³ may occasion temporary impotence ; and the loss of a large sum of money⁴ or the drawing of a prize in a lottery⁵ may bring about the same result. In other cases, the impotence is, in regard to certain women, due to indifference, repugnance, or a suspicion of infidelity.

Impotence is very frequently entirely imaginary or mental, although it is based upon existing lesions. Thus too small a penis, occasional nocturnal seminal losses, stricture of the urethra, a tight prepuce, varicocele, a gleety discharge, or irritability or neuralgia of the testis, not infrequently restrain erection through fear of inability to penetrate, or of increasing the pollutions, or of impossibility of ejaculating, or of aggravating the local troubles. The same statement is true of moderate masturbators, who probably have normal nocturnal emissions which they assume to be or have been informed are indicative of a diseased condition, and who seem to regard impotence as a heritage of their vice. In not one of these conditions is there any valid reason for the trouble, but it has been ignorantly brought on by the constant thought that impotence was the natural result of the supposed infirmities.

I have already alluded to the fact that young husbands, in their eagerness to consummate the rite, not infrequently

¹ *Traité de l'Impuissance et de la Stérilité*, t. i. p. 186.

² *Op. cit.*, p. 433.

³ *Wiener Klinik*, May and June, 1879, p. 131.

⁴ *Ibid.*

⁵ Roubaud, *op. cit.*, p. 186.

fail; and I fancy that there are few men who did not ejaculate prematurely when they had connection for the first time. In such cases, the repetition of the act soon corrects the trouble. Most writers on impotence, however, teach that it is not uncommon for newly married men to be baffled, simply because they are afraid that they cannot accomplish the act properly, or because the mortification which results from the unfortunate attempt gives rise to so much distress and anxiety in regard to its recurrence that the otherwise healthy subjects are really rendered impotent. I am no believer in this doctrine, which is, as a rule, as false in fact as it is pernicious in regard to the treatment which such cases demand; but I do believe that this condition arises from overlooked lesions of the prostatic urethra which were induced, as a rule, by masturbation. An examination of the views of writers on this subject, as, for example, Van Buren and Keyes,¹ Curschmann,² Rosenthal,³ and Ultzmann,⁴ will show that nervous or psychical impotence is usually met with in masturbators, subjects who are always more or less timid as to their virile powers, and many of whom are incapable of normal sexual excitement. Instead of accepting the statements of these patients, that their failure was due to normal impetuosity, timidity, or want of self-confidence, it will be wise for the surgeon to explore the urethra, since, as I have already indicated, onanism is the most fruitful source of inflammation and hyperæsthesia of the prostatic portion of the urethra, a view in which I am sustained by Rosenthal, Ultzmann, Black,⁵ Acton,⁶ and

¹ *Genito-Urinary Diseases, with Syphilis*, p. 453.

² *Ziemssen's Cyclopædia*, vol. viii. p. 892.

³ *Wiener Klinik*, May, 1880, p. 137. ⁴ *Ibid.*, May and June, 1879, p. 130.

⁵ *On the Functional Diseases of the Renal, Urinary, and Reproductive Organs*. Philada., 1872, pp. 229 and 269.

⁶ *The Functions and Disorders of the Reproductive Organs*. 2d Amer. ed., pp. 91 and 240.

nearly all surgical authors. Hence, the failure to copulate in this class of patients is due to diminished reflex irritability of the centre for erection, although it is possible that undue excitement or timidity may aggravate that condition by exerting an inhibitory influence over the centre. Such cases should, therefore, be relegated to the preceding or atonic variety of impotence.

The only cases of psychical impotence that I have ever met with are the following :

CASE XVII. A widower, fifty-two years of age, was engaged to be married, and, despite the fact that he had erections in the presence of the object of his affection, he was so fearful that he would disgrace himself on the night of his wedding, that he made the experiment with another woman, and utterly failed. As a consequence of this unfortunate test, he constantly brooded over his imaginary trouble, for which he sought my opinion. I found that his genital organs and prostatic urethra were perfectly normal, and succeeded in obtaining his confidence by assuring him that I had met with many cases of a similar nature, and that they had always yielded readily to teaspoonful doses of fluid extract of damiana taken every eight hours for three days before marriage. As a result of this ruse, he subsequently wrote me that the remedy had acted like a charm.

CASE XVIII. A clerk, twenty-six years of age, married two days, on consummating his matrimonial engagement, had a feeble erection with a precipitate emission. He never had gonorrhœa, but masturbated at an early age, and, on ceasing the practice, was troubled with nocturnal pollutions. The urethra and genital organs were absolutely sound, and the difficulty arose simply from fear that he could not accomplish the act properly.

The following would have been classified as cases of psychical impotence by physicians who are not in the habit of exploring the urethra in this and allied affections :

CASE XIX. A merchant, twenty-eight years of age, stated that he was suffering from spermatorrhœa, which had so weakened his powers that, on attempting intercourse four years previously, the erection was so feeble that it passed off before the completion of the act. He had not renewed the effort, as he was convinced that he was permanently impotent. I found that the so-called spermatorrhœa consisted in an intermittent discharge of prostatic fluid at stool, and in an occasional nocturnal emission. A stricture, calibre 25, was detected at six inches from the meatus, the prostatic urethra was excessively sensitive, and the man had almost constant pain in the back.

CASE XX. A lumberman, thirty years of age, consulted me on account of impotence, which he ascribed to undue size of his penis, as he found that on his first connection intromission was difficult, and ejaculation was precipitate and painful; and that on several subsequent efforts the erections did not come up to the proper standard. He had abstained from intercourse for about thirty months, as he was convinced that the trouble arose from the size of the organ. He suffered from pain in the back, and weakness of vision, and informed me that he had masturbated from his fifteenth to his twenty-seventh year. There was a stricture, calibre 18, at six inches and a quarter from the meatus, and the prostatic urethra was morbidly sensitive.

CASE XXI. A commercial traveller, thirty-six years of age, complains that he has been married for four days, but that he has been unable to consummate the rite, in consequence of the impossibility of intromission from insufficient erections. He has never had gonorrhœa, nor did he masturbate much in his youth; but during his engagement, which preceded his marriage by seven months, his genitalia were kept in a constant state of excitement by fondling the object of his affection, and he did not have illicit intercourse to relieve his passions. The entire urethra was exquisitely sensitive; but there was no evidence of a coarctation.

In the first two of the foregoing cases an inexperienced observer might readily have assumed that the trouble depended upon brooding over conditions which the patients thought had prevented natural copulation; and he might have ascribed the failure of erections in the third case to congenital deficiency, a variety of impotence which is described by certain authors, when the causes are inexplicable. In all of these examples, however, the failure of the first attempts was due to debility of the genital centre, a lesion of which the men were naturally entirely ignorant.

I have dwelt somewhat at length upon the erroneous diagnosis which is usually made in cases of so-called psychical or nervous impotence, in order that I might call attention prominently to the importance of examining the urethra in all examples of impotence, since the prognosis is far more favorable when the trouble depends upon hyperesthesia of its prostatic portion than when that condition is absent. Had this precaution been observed by many writers on the subject, they would have been able to give a less gloomy account of psychical impotence, and have said less of the importance of gaining the patient's confidence, and of the moral treatment adapted to each case.

TREATMENT.—In the management of psychical impotence from undue sexual excitement or emotional causes, little need be done, except to administer a placebo, with the assurance that it will afford relief, since such cases usually remedy themselves. In the case of Grimaud de Caux, the wife resorted to the strategem of slightly intoxicating the husband before connection, through which he was rendered capable of procreating.

In the variety of mental impotence in which an existing lesion has thoroughly impressed the patient with the belief

that it is the source of his trouble, the treatment usually advised, namely, to gain the man's confidence, is not easily carried out. Such patients are very watchful of themselves and of their physicians, and it is useless to try to convince them that a varicocele, for example, is productive of no harm, so far as the sexual functions are concerned, or that the involuntary emissions are strictly within the limits of health. Hence, it is far better to agree with them that their imaginary infirmities demand treatment, to assure them that they are capable of relief, and above all to institute the treatment laid down in surgical works, as it will be found that they are more or less familiar with the various maladies of which they complain. A tight or redundant prepuce should, therefore, be removed, and the introduction of bougies, or local galvanization or faradization, or other measures be resorted to, along with a bitter tonic, and a systematic regulation of the diet, bathing, and exercise. The mind is open to persuasion in this way, but not by mere assurances, or by making light of the fancied disorder. If the subject is contemplating matrimony, he should be advised to fulfil his engagement; and a placebo, such as a minute quantity of phosphorus, or a drachm of the tincture of damiana, of the presumed virtues of which he will have some knowledge, should be administered at stated intervals for a few days previously.

SECT. IV. SYMPTOMATIC IMPOTENCE.

Sexual power is now and then greatly impaired, if not absolutely destroyed, by the prolonged use of certain cerebral sedatives, as opium, morphia, chloral, bromide of

potassium, and alcohol, as well as of cerebral excitants, as cannabis indica, and by the administration of or exposure to arsenic, antimony, lead, sulphide of carbon, and iodine. All of these agents are capable of exerting a harmful influence upon the entire organism, but particularly upon the nervous system and the genital organs, when pushed to an undue extent.

The anaphrodisiac action of chloral, of bromide of potassium, and of spirituous and malt liquors is too well known to require illustration. Rosenthal¹ has recorded two cases of impotence and azoospermism from the hypodermic injection of several grains of morphia daily; and Siredey² states that the habitual use of hashish by the Orientals induces absolute impotence early in life. Biett,³ Charcot,⁴ Rosenthal,⁵ Rayer,⁶ and Lewin⁷ have observed that sexual vigor diminishes and finally ceases with the increase of the dose of arsenic in the treatment of diseases of the skin; and Rosenthal⁸ observed the same effect in a merchant who resided in a room covered with arsenical paper. Lohmerer⁹ witnessed impotence in four men who were exposed to the fumes of antimony; and the absorption of the vapor of sulphide of carbon by workmen engaged in the manufacture of vulcanized caoutchouc is said by Delpach¹⁰ to be followed by loss of virility. Lead poisoning may cause temporary impotence, as in the cases recorded by Siredey,¹¹ Portal,¹² Roubaud,¹³ and Rosenthal;¹⁴ and Bartholow¹⁵ thinks that

¹ Wiener Klinik, May, 1880, p. 149.

² Dict. de Méd. et de Chir. Prat., t. xviii. p. 456.

³ Ibid.

⁴ Bull. de Thér., Jan. 1864, p. 529.

⁵ Loc. cit., p. 151.

⁶ Ibid.

⁷ Berl. klin. Wochenschrift, No. 17, 1884, p. 268.

⁸ Ibid., p. 152.

⁹ Orfila, Traité de Toxicologie, t. i. p. 650.

¹⁰ Dict. de Méd. et de Chir. Prat., t. xviii. p. 456.

¹¹ Ibid., p. 455.

¹² Cours d'Anat. Méd., t. v. p. 434.

¹³ Op. cit., p. 303.

¹⁴ Loc. cit., p. 153.

¹⁵ Materia Medica and Therapeutics, 3d ed., p. 189.

the prolonged use of the iodides has resulted in permanent loss of the sexual power.

Impotence is not an uncommon secondary effect of injuries of the brain and spinal cord ; and it may also be symptomatic of various functional disorders and of acute and chronic affections, but particularly of the nervous, digestive, and urinary systems, as brain worry, spinal irritation and weakness, spinal meningitis and myelitis, locomotor ataxia, progressive muscular atrophy, dyspepsia, saccharine diabetes, and albuminuria. I have myself met with a case in a young man in which failure of erections was one of the earliest signs of diabetes, although the quantity of sugar in the urine was small, and the general powers of the system were not reduced. The grade of impotence in that affection, as Seegen¹ has demonstrated, is not dependent upon the amount of sugar excreted, as virility may not be impaired when the quantity is large.

In the preceding affections, the form of impotence generally met with is the so-called irritable weakness, or the condition characterized by feeble erections and hasty ejaculations, which is soon followed by complete loss of erections with abolition of the sexual appetite.

PROGNOSIS AND TREATMENT.—When impotence arises from the excessive use of remedial agents, from saturation of the system with arsenic, lead, or other toxic substances, and from certain chronic disorders, the power of erection usually returns with the improvement in the symptoms ; but when it depends upon injuries of the cerebro-spinal axis the outlook is unfavorable. When all signs of inflammation have subsided after disease or injury of the cord,

¹ *Der Diabetes Mellitus*, p. 112.

and, in other cases, if the erections are insufficient after the cure of the original trouble, tonics, with a few drops of tincture of cantharides, or minute doses of phosphide of zinc, along with cold douches and galvanization of the spinal cord and testes, are indicated.

SECT. V. ORGANIC IMPOTENCE.

The power of sexual intercourse may be temporarily or permanently abolished in consequence of certain congenital or acquired malformations, injuries, or diseases of the external genital organs, through which penetration is rendered impossible, or in which the loss of erection depends upon arrested secretory activity of the testes.

A.—IMPOTENCE FROM ABNORMAL CONDITIONS OF THE PENIS.

a. The *malformations* of the penis which prevent coition are complete absence, a rudimentary condition, or division of the organ, of which vices of conformation, examples have been recorded, respectively, by Goschler,¹ Fodéré,² and Förster.³ A double penis, as in the case observed by Van Buren and Keyes,⁴ may prevent intromission; but in the Portuguese, nineteen years of age, of whom Hart⁵ gives a full account, there was considerable virile power, and the left organ was used in coition.

¹ Prajer Vierteljahrsschrift, 1859, Bd. iii. p. 89.

² Médecine Légale, t. i. p. 360.

³ Klebs, Hdbch. der Path. Anat., p. 1132.

⁴ Op. cit., p. 5.

⁵ Lancet, 1865, vol. ii. p. 124.

3. *Variations in the size* of the penis are causes of relative impotence. In the case of Roubaud,¹ in which the organ was only two inches long and of the circumference of the quill of the porcupine, its volume was increased and intercourse rendered practicable by a mechanical contrivance; while in the case of Wilson,² in which, at the age of twenty-six, the penis and testes were scarcely larger than those of a boy of eight years, the organs acquired the usual size in twenty-four months after marriage. Nothing can be done for the stunted penis which is associated with exstrophy of the bladder. The organ may also be unfitted for use by being partially or completely buried or concealed in a large scrotal hernia, hydrocele, or elephantiasis of the scrotum, from which it may be freed by appropriate operations, or by the application of a truss if the hernia be reducible. Extreme size of the penis may also involve relative incapacity for intercourse; and inordinate bulk from elephantiasis or morbid growths of the prepuce, gland, or body of the organ, or from urethral or preputial calculi, may prevent penetration. In these lesions the prognosis is usually favorable, even if the operations for their relief necessitate the removal of the entire gland. Loss of the penis through disease or through design is irremediable.

4. *Adhesion of the penis to the scrotum*, the penis palmé of the French writers, in which the former is tied down by its under surface to the latter, and is frequently incurvated, is a rare cause of impotence, but is remediable. In the more simple form of the affection liberation of the organ may be effected by division of the web of skin. When, on the other hand, the union is more considerable, and the penis

¹ Op. cit., t. i. p. 160.

² Lectures on the Urinary and Genital Organs, p. 424.

is curved downwards, the combined operation of Weir¹ and Bouisson² holds forth excellent prospects for a good result, and is described by the former surgeon in the following terms: "An incision was made on each side of the scrotum sufficiently free from the body of the penis to afford skin enough to cover the under surface when released, and the flaps were dissected up to the penis. This constituted the first step of the operation. The second consisted in separating the urethra, with the corpus spongiosum, from the corpora cavernosa as far back as the posterior margin of the scrotum. This required but a few cuts of the scissors, as the band was only about one inch and a half long, and produced no effect upon the curvature of the penis. On stretching out the curved organ, the septum between the corpora cavernosa could be easily felt as a tense, thickened band, and its division constituted the third step in the operation. It was accomplished by a tenotomy knife, introduced, however, not so far as described by Bouisson, and cutting freely the septum in its lower part and half way between the glans and the scrotum. Immediately after this section was made, the curve was readily abolished, and the deformity thoroughly overcome. The transverse incision made involved, however, the tissues of both corpora cavernosa, and gave rise to persistent and troublesome oozing of blood, only arrested by a ligature placed around an acupressure needle. The skin flaps were then united by a suture on the under surface of the penis, and the gaping edges of the scrotal wound brought together without tension; having, however, first secured the mucous membrane of the urethra by fine sutures to the integument at the

¹ New York Med. Journ., vol. xix. p. 281.

² *De l'Hypospadias et de son Trait. Chir.*, t. ii. p. 536.

posterior angle of the wound, that is to say, at the junction of the scrotum with the perineum. The penis was laid against the abdomen, without need of a retaining bandage, and cold-water dressings were applied to the parts."

5. *Distortion of the penis* may prevent copulation, and may be due to congenital or acquired affections of the corpus spongiosum or the corpora cavernosa.

1. The most common cause of unusual shape of the male organ, according to my observation, is *congenital shortness of the corpus spongiosum*, which acts like the string of a bow, and keeps the penis bent downwards toward the perineum. In a few examples this is the only deformity; but in the majority there is a slight degree of hypospadias, and the gland is somewhat flattened. I have myself met with impotence from this cause in two instances, and have seen at least a dozen additional cases in the practice of S. D. Gross and Joseph Pancoast.

For the relief of this condition, the operation of cutting a wedge out of the corpora cavernosa, which was devised by Physick¹ and which has been successfully practised by Gross, Pancoast, Furneaux Jordan,² of Birmingham, and myself, is attended with the most gratifying results. The skin of the dorsum of the penis, behind the gland, having been pinched up and divided transversely by transfixing its base, a V-shaped portion, embracing about two-thirds of the thickness of the corpora cavernosa, and of sufficient length to remedy the deformity, is excised by carrying the bistoury first from behind forwards, and then from before backwards, the second incision being made about a quarter

¹ Gross's Surgery, 6th ed., vol. ii. p. 834.

² Lancet, 1876, vol. i. p. 169.

of an inch behind the head of the penis. The arteries, two or three in number, having been secured by fine ligatures, the edges of the wound are approximated by three silver sutures, one of which is carried through the cut surfaces of the septum, and the other through the sides of the tunica albuginea, the edges of the wound of the skin being brought together separately. The penis is then supported upon a splint and kept covered with cold water, and the stitches are removed in eight or ten days. For some days previous to the operation, full doses of bromide of potassium should be administered, with the view to prevent erections.

2. Vicious direction of the penis is generally due to the formation of *circumscribed plates or lumps of induration in the erectile tissue and fibrous sheath of the corpora cavernosa*, an affection which was first described by La Peyronie,¹ and subsequently by Boyer,² Kirby,³ Johnson,⁴ Galligo,⁵ Cruveilhier,⁶ S. D. Gross,⁷ Hewett,⁸ Van Buren and Keyes,⁹ Curling,¹⁰ Scholz,¹¹ and other observers. The areas of induration are usually single, and confined to one of the cylinders, although, as in several examples recorded by Kirby and Galligo, they may be multiple, and be scattered throughout the organ ; and, as in a case observed by Curling, they may be associated with a similar lesion of the corpus spongiosum. Their consistence varies, but it is usually hard

¹ Mém. de l'Acad. Roy. de Chir., 1819, t. i. p. 316.

² Traité des Mal. Chir., t. vi. p. 802.

³ Dublin Med. Press, Oct. 3, 1849, p. 209.

⁴ London Lancet, 1851, vol. ii. p. 481.

⁵ Gaz. Méd. de Paris, 1852, p. 440.

⁶ Anat. Path., t. iii. p. 593.

⁷ Op. cit., vol. ii. pp. 833 and 858.

⁸ British Med. Journ., Feb. 1872.

⁹ New York Med. Journ., vol. xix. p. 390, and op. cit., p. 24.

¹⁰ Op. cit., p. 462. ¹¹ Schmidt's Jahrb., Bd. cii. p. 33.

and cartilaginous. As the natural result of the obliteration of the meshes of the erectile tissue, the organ, during erection, deviates toward the lesion, so that it may be drawn upwards, downwards, or to either side, thereby materially interfering with coition, if not rendering that act impracticable. In one case reported by Van Buren and Keyes, the penis curved almost to a right angle, and in others it assumed a spiral form.

The affection is almost always met with after middle life, but its etiology is obscure. Of twenty-five examples which I have collated, in ten the cause could not be determined; in seven it was connected with the gouty diathesis; in four it resulted from injury during coition; in three it was ascribed to gonorrhœa; and in one it arose from a violent erection. Kirby, Curling, and Hewett believe that it is connected with gout; S. D. Gross has met with it most frequently in men who have committed venereal excesses; Verneuil¹ states that sugar was present in the urine in nine of the ten cases that he had met with; while others think that it usually arises from extension of gonorrhœal inflammation.

Of the intimate nature of the lesion, nothing is accurately known, as the condition has not been verified by post-mortem inspection. Hewett supposes that the nodules arise from clots of blood in the meshes of the corpora cavernosa; Van Buren and Keyes think that they depend essentially upon chronic inflammatory plastic obliteration of the meshes; and Klebs² teaches that they are the result of a combination of inflammation and thrombosis.

¹ *Révue de Chirurgie*, No. 12, 1884, p. 986.

² *Hdbch. der Path. Anat.*, p. 1152.

2. Closely allied to the preceding affection is *cicatricial induration of the corpora cavernosa*, the effect of injury, abscess, or destructive inflammation. Thus, Curschmann¹ relates a case of upward and lateral deviation of the penis from an induration resulting from forcing the erect penis downwards. Baudens² records an example of gunshot wound of one corpus cavernosum, with lateral curvature. Johnson³ met with an instance of distortion from abscess of the right corpus cavernosum; and he also describes a case in which the glans penis came in contact with the left side of the pubes from burrowing phagedæna.

3. *Gummata of the corpora cavernosa*, of which condition Ricord⁴ has given a good description, are not infrequently attended with faulty curvature of the penis; but, as they do not evince any tendency to break down, they are indistinguishable from the patches of induration resulting from other causes.

4. *Calcification of the septum pectiniforme, or the corpora cavernosa*, may give rise to impotence from upward or downward curvature of the penis. In the case of a man, fifty-two years of age, McClellan⁵ relieved the deformity by removing a so-called ossified septum by an incision which extended throughout the entire length of the organ; and Regnoli⁶ also restored the power of normal erection by excising the ossified portion, which did not include the entire thickness of the cylinders.

¹ Loc. cit., p. 886.

Clinique des Plaies d'Armes à Feu, p. 408.

² Loc. cit., p. 574.

³ Humstead and Taylor, Venereal Diseases, 4th ed., p. 639.

⁴ Lancet, 1828, vol. i, p. 714.

⁵ Petrequin, Brit. and For. Med. Rev., vol. xx. p. 136.

When distortion of the penis arises from gummata, the prospect of relief from the administration of iodide of potassium and bichloride of mercury, and from friction with mercurial ointment, is favorable. The induration resulting from laceration, or so-called fracture, of the corpora cavernosa is irremediable. The prognosis in circumscribed patches of these bodies is notoriously unfavorable, as the only cure from general measures, of which I have any knowledge, is that obtained by Scholz by the application of tincture of iodine, plaster of vigo, and warm douches; although Curling¹ records a case in which the hardness nearly disappeared, and in which the erections were almost normal, by the internal administration of bin-iodide of mercury, and by the local use of tincture of iodine. In a case narrated by Friedberg,² an induration of the corpus cavernosum as large as a hazelnut was made to disappear by inserting a seton under the skin, and permitting it to remain in contact with the tunica albuginea for one month. Boyer and S. D. Gross recommend excision of the patches, a practice which I myself would follow if they were single, and of moderate volume. When the curvature depends upon calcification of the corpora cavernosa or its septum, the outlook is far better, since the removal of the offending substance, as in cases of McClellan and Regnoli, is followed by the most gratifying results. After a shot wound of the right corpus cavernosum, which terminated in a hard, depressed, and adherent cicatrix, Baudens succeeded in effecting a cure by making two incisions in the opposite cylinder, on a level with the upper and lower extremities of the scar, and exciting suppuration by the insertion of tents, through which

¹ Op. cit., p. 464.

² Prajer Vierteljahrsschrift, 1862, Bd. i. p. 20.

manceuvre a compensating induration was obtained, and the curvature was remedied.

o. The power of erection may be lost in consequence of the permanent *retention of a ball in the corpus cavernosum*, of which curious condition I have recorded an example.¹ The missile was encysted in the right cylinder, and its point presented toward the pubes, from which it was separated about one inch; but the man refused to have it removed.

o. Impotence may depend upon congenital or acquired *shortness of the frenum*, through which the head of the penis is distorted; and coition is abstained from on account of the suffering with which the act is attended. The proper remedy is division.

x. Finally, insufficient erections are occasioned by *varix of the dorsal vein* of the penis. In a case of this description, Parona² effected a rapid cure by the intravenous injection of equal parts of chloral and water; and Bartholow³ states that he has obtained excellent results from the hypodermatic injection of ergotine in the immediate vicinity of the enlarged and tortuous vein.

B.—IMPOTENCE FROM DEFECTS AND DISEASE OF THE TESTES.

a. *Congenital bilateral anorchidism*, or absence of the testes, of which condition examples are quoted in the chapter on sterility, is necessarily attended with absolute

¹ Med. and Surg. History of the War of the Rebellion, Part II., vol. ii. p. 345.

² Annales de Derm. et de la Syph., t. i. p. 453.

³ Op. cit., p. 295.

impotence. *Cryptorchids*, or persons in whom the organs are retained in the abdomen or the groins, are on the other hand generally potent, although they are only exceptionally fertile; and arrest of development, as a rule, diminishes virility.

β. *Loss of the testes* from disease, self-mutilation, or surgical interference is presumptive of inability to copulate, although in exceptional cases the erections may continue for a considerable time, as is exemplified in the following instances.

Sir Astley Cooper removed the testis of a man two years after the other had been excised. For the first twelve months he had connections. At the end of two years the erections were more rare and imperfect, and they usually ceased under attempts at congress. Ten years subsequently he stated that he had had intercourse only once during the previous year; and twenty-eight years after the operation the penis was shrivelled and wasted, and for many years coition had been impossible.

M. Wilson¹ removed both testes for malignant disease, and the man survived the operation two years. He had occasional erections, and intercourse was attended with the usual feeling and with the ejaculation of some fluid.

Professor Humphry² met with a man who had submitted to castration on account of nervous troubles, but who was able to have connection with an emission for more than a year, although less frequently than before the mutilation.

Mr. Curling³ removed the right testis of an officer seven years after the excision of the left testis by another sur-

¹ Lectures on the Urinary and Genital Organs, p. 133.

² Holmes's System of Surgery, 2d ed., vol. v. p. 160.

³ Op. cit., 4th ed., pp. 307 and 450.

geon. At the expiration of four years and a half from the operation the officer informed Mr. Curling that he had intercourse with his wife about once a fortnight, but without an ejaculation.

r. Progressive atrophy of the testes is very liable to be attended with impotence; and Liégeois¹ found that the power of erection was diminished in four cases out of six of atrophy of one organ.

s. Bilateral syphilitic orchitis generally involves impotence;² while of forty-one examples of *double epididymitis* analyzed by Liégeois³ and Gosselin⁴ virility was diminished in only eight.

t. Tumors, as carcinoma, and sarcoma, and *tuberclé*, when they completely destroy or disorganize the parenchyma of the testes, are also attended with impotence; but the statement does not hold good when one organ alone is affected.

The power of erection after having been lost may usually be restored, when it depends upon syphilitic orchitis, by mercurial inunctions and the exhibition of iodide of potassium and bichloride of mercury. Arrest of development of the testes is sometimes overcome by the influence of sexual desires, as in the interesting example recorded by Wilson,⁵ in which, at the age of twenty-six, the glands were not larger than those of a child, but in which they increased almost to the volume of those of an adult man two years after marriage. In all the remaining causes of impotence from lesions of the testes the trouble is beyond relief.

¹ Annales de Derm. et de la Syph., t. i. p. 437.

² Liégeois, loc. cit., p. 431.

⁴ Archives Générales, sér. 5, t. ii. p. 267..

³ Ibid., p. 424.

⁵ Op. cit., p. 424.

CHAPTER II.

STERILITY.

SECT. I. GENERAL OBSERVATIONS.

THE generative act on the part of the male implies the completion of sexual congress with an ejaculation of fertile semen, and its deposition in the upper part of the vagina. As we have already seen, the capacity for copulation depends upon the perfect erection of the penis, the failure of which renders the man sterile from impotence. Sterility, on the other hand, not only does not include impotence, but is met with in subjects who are vigorous in intercourse, and who ejaculate a fluid which, in the absence of minute examination, presents all the properties of normal semen. Hence it is difficult for these subjects to realize that they are the cause of barren marriages.

For the proper understanding of the alterations which the semen undergoes in disease, I consider it requisite to preface the consideration of sterility with a summary of the most important attributes of the normal fluid.

Semen is the mixed product of the secretions of the testes, vasa deferentia, seminal vesicles, sinus pocularis, prostate, Cowper's glands, and the mucous follicles of the urethra. The thick, white, pasty secretion of the seminiferous tubes consists mainly of spermatoblasts, or seminal cells, out of which the spermatozoa, or fertilizing elements, are developed; but the spermatozoa first make their appearance in the rete testis, and constitute at least nine-

tenths of the glutinous mass. In the epididymes and vasa deferentia the zoosperms are perfectly motionless from the density of the medium in which they are contained; but when they have reached the seminal vesicles they are in active rhythmical, undulating motion. These facts are noticed because some authors have erroneously based their conclusions in regard to the productiveness of the semen upon minute examination of the parenchyma of the testes and the epididymes, or situations in which spermatozoa are only forming, or in which they have as yet not acquired mobility.

The fluid contained in the seminal vesicles is odorless, viscous, and colorless, resembling fresh honey, heavier than water, of neutral reaction, and does not coagulate. When, however, it is incorporated with the secretions of the prostatic and urethral glands, semen has an albuminous consistence, a whitish or opalescent tint, and an alkaline reaction, and it emits a peculiar faint odor which is not unlike that of the raspings of fresh horn or bone. After ejaculation it is transformed into a gelatinous mass, but it becomes more fluid after exposure to the air for a few minutes.

From the preceding considerations it is obvious that, while the testes furnish the fecundating elements of the semen, the secretions of the associated glands, and particularly the secretion of the prostate, not only render it more thin and abundant, but also impart to it its color, odor, alkalinity, and coagulability. The prostatic fluid, moreover, has a more important function than that of serving as a vehicle for the transmission of the spermatozoa to the uterus, since Kraus¹ has shown that, in its

¹ Medical Times and Gaz., 1871, vol. i. p. 170.

absence, these bodies cannot live in the uterine mucus, but that, with its aid, they often survive more than thirty-six hours, or even for eight days and a half, as has been demonstrated by Percy,¹ of New York.

As early as 1856 Marris Wilson² assigned the same purpose to the secretion of the prostate, and regarded the neutral phosphate of lime contained in that fluid as the element upon which the vitality of the spermatozoa depends, since it protects them against destruction by the too acid or too alkaline conditions of the secretions of the passages through which they have to pass in their progress to the ovum.

If the ejaculated semen be permitted to stand in a test tube for a few hours, it will separate into two layers, of which the upper one, or the liquor seminis, is thin, whey-like, and transparent, and contains a few epithelial cells derived from the seminal passages and detritus, while the lower one is thick, white, opaque, and consists of spermatozoa. From the thickness of the sediment, and the rapidity of its precipitation, Ultzmann³ states that a conclusion may be drawn in regard to the number of spermatozoa in any given specimen, as will be pointed out in the consideration of azoospermism from abnormal conditions of the semen.

A drop of semen discloses under the microscope, as in Fig. 12, the male elements of generation, or spermatozoa, which are constituted by a pyriform, flattened head, an intermediate portion, or the beginning of the tail, and a long, tapering, filiform tail, which is in rapid undulating motion, and which propels the head directly forwards.

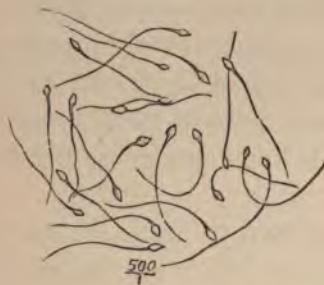
¹ Sims, *Uterine Surgery*, p. 374.

² *Lancet*, 1856, vol. ii. p. 483.

³ *Wiener Klinik*, May and June, 1879, p. 153.

These movements should continue at least twelve hours after the fluid is ejaculated. If they are wanting, and the spermatozoa are alive, as may happen when the semen is

FIG. 12.



Spermatozoa.

FIG. 13.



Spermatic crystals.

too thick, motion may be excited by the addition of weak alkaline solutions; but if they remain motionless under this treatment, they are incapable of impregnating the ovum.

Minute examination of semen which has been allowed to dry on an object glass, or of the lower layer which forms after the secretion has stood for some time, shows, on the second or third day, at first a few and later a considerable number of transparent, variously modified rhombic prisms with their bases in apposition; the ends of these occasionally terminate in fine points, but usually in rhombi, as in Fig. 13. They were discovered by Van Deen¹ and Boettcher,² the latter of whom termed them spermatic crystals, and regarded them as being composed

¹ Ctrbl. für die med. Wiss., 1864, p. 355.

² Virchow's Archiv, Bd. xxxii. p. 535.

of albumen. Ultzmann, however, says that they consist of phosphate of magnesium, while other observers regard them as being composed of ammonio-magnesian phosphate, a view in which I coincide, and which is verified by Fig. 16. Ultzmann¹ has directed attention to the fact, which has been confirmed by Rosenthal's² and my own investigations, that the early and abundant formation of these crystals denotes a diminution of the number of the spermatozoa or their entire absence; and Fürbringer,³ from an examination of the contents of the seminal vesicles and the prostatic fluid of sixty-six bodies, and of the prostatic secretion derived from twenty-one healthy persons, has demonstrated that the crystals occur exclusively in the latter, and that they indicate functional activity of the glands of the prostate. That this view is correct is also demonstrated by the early appearance of the crystals in large numbers in the fluid ejaculated by azoospermous subjects.

Semen begins to be secreted at the epoch of puberty, and continues to be formed until an advanced age, although the sexual power is usually lost after the sixty-fifth year. Liégeois⁴ examined the ejaculated fluid of eight young persons, and found abundant spermatozoa in two at fourteen years, in four at sixteen years, and in two at eighteen years. Previous to the researches of Duplay⁵ in 1852, and of Dieu⁶ in 1867, the opinion was very general that the semen of old persons was as infertile as was that of impubic boys, although Wagner⁷ has noted the presence

¹ Loc. cit., p. 154.

² Wiener Klinik, May, 1880, pp. 137, 139, and 149.

³ Volkmann's Vorträge, No. 207, pp. 1848-1851.

⁴ Medical Times and Gazette, 1869, vol. ii, p. 247.

⁵ Archives Générales, sér. 4, t. xxx, p. 385.

⁶ Journ. de l'Anat. et de Phys., 1867, p. 449.

⁷ Histoire de la Génération, p. 31.

of spermatozoa in sexagenarians and septenarians, and Curling¹ and Casper² had met with them, respectively, at eighty-seven and ninety-six years. That old men in the enjoyment of good health are as able to produce zoosperms as younger men is shown by the investigations of Liégeois,³ who discovered them in every examination, thirteen in number, of the fluid emitted by that class of persons. When death, however, occurs from decrepitude, or without any organic lesions except those which are common to advanced age, Dieu found that the fluid of the seminal vesicles contained spermatozoa in only six, or twenty-three per cent., of twenty-three examinations. From these observations we may conclude that the secretion of semen continues to be formed in healthy old men, but that it is very liable to cease in decrepitude. These facts and the production of semen in disease will receive full attention in the succeeding section.

CLASSIFICATION.—Sterility includes, first, azoospermism, or the condition in which either no semen whatsoever, or unproductive semen, is secreted; secondly, aspermatism, in which spermatic fluid is not ejaculated; and, thirdly, mis-emission, or the failure to deposit fertile semen in the upper portion of the vagina. In the first variety intercourse and ejaculation are natural, but the essential anatomical elements are absent or dead, either because they are not formed or are imprisoned behind an obstacle seated in the epididymes or vasa deferentia, or because they are unable to live in the medium in which they are suspended. In the second variety the ability to copulate is unimpaired, but the

¹ Op. cit., p. 432.

² Loc. cit., p. 247.

³ Forensic Medicine, Syd. Soc. ed., 1864, p. 292.

power to ejaculate is prevented by an impediment situated between the seminal vesicles and the urinary meatus. In the third variety coition and emission are perfect; but fruitful semen fails to reach its proper destination, in consequence of congenital deficiencies of the urethra, or of fistulous openings in that canal resulting from inflammation, or of abnormal positions of the meatus.

RELATIVE FREQUENCY.—It is not at all uncommon for physicians to assume that a man who is potent, and who is able to ejaculate, is capable of procreating. As a result of the omission to examine the emitted fluid, and carefully to explore the male organs, little is known of the relative frequency of sterility in the two sexes; and gynecologists, with the exception of those mentioned below, do not appear to have made any contributions to the solution of this important subject. I have been able to collect one hundred and ninety-two cases in which examination of both the husband and wife demonstrates that the former was at fault in thirty-three, or in seventeen per cent. Of this number, Manningham¹ records one in thirty; Pajot² seven in eighty; Mondot³ one in ten; Kehrer⁴ fourteen in forty; Courty⁵ one in ten; Noeggerath⁶ eight in fourteen; and I myself have found that the male was deficient in one example in eight. The cause of the sterility was azoospermia in thirty-one, and aspermia in two. These facts show that the husband is at fault in about one case out of every six; and they convey information which should be carefully

¹ Wiener Med. Blätter, 1879, pp. 1223 and 1271.

² Beiträge zur Klin. und Exper. Geburtkunde und Gynäkologie, Bd. ii. p. 76.

³ Wiener med. Presse, 1880, p. 252.

⁴ Trans. Amer. Gynec. Soc., vol. i. p. 287.

weighed before the practitioner even resorts to inspection of the female organs of generation.

SECT. II. AZOOSPERMISM.

Azoospermism may be due, first, to congenital bilateral anorchidism; secondly, to congenital bilateral deficiencies of the epididymis or vas deferens; thirdly, to cryptorchidism; fourthly, to affections of the testes; fifthly, to obliteration or obstruction of the epididymes or vasa deferentia; and sixthly, to abnormal conditions of the semen. Hence, the affection may be congenital or acquired, and absolute or relative.

A.—BILATERAL ANORCHIDS.

Men born without testes are not only azoospermous, but, from the fact that the accessory secreting organs are rudimentary, they are unable to ejaculate a drop of any kind of fluid. From a study of four cases, Godard¹ found that persons in this condition resemble eunuchs mutilated early in life. They have no venereal desire, and although they may have, as an exception, erections, they are absolutely impotent and sterile. It is important to bear in mind that a distinction may be made between anorchids and cryptorchids, when the testes are retained in the abdomen, as the latter are apt at coition, and emit a fluid which is, however, as a rule, devoid of spermatozoa.

¹ Note sur l'Absence Congéniale du Testicule. Mémoires de la Soc. de Biologie, 1859, p. 311.

B.—CONGENITAL BILATERAL DEFICIENCY OF THE EPIDIDYMIS
AND VAS DEFERENS.

Double deficiencies of the excretory apparatus of the testes prevent the elimination of the secretion of the latter, and render them useless. Rhodius¹ met with an instance of absence of the epididymes in an adult; and John Hunter² dissected a body in which, while the testes were normal and were contained in the scrotum, the epididymes and vasa deferentia were deficient, and the seminal vesicles did not communicate with the urethra. Although the state of the genital functions in these cases must remain a matter of conjecture, there is no reason for believing that a mere deficiency of the excretory passages between the testes and seminal vesicles engenders impotence and incapability of ejaculation, provided the seminal vesicles, ejaculatory ducts, and the prostate are normal, as, under these circumstances, the condition would not be worse than that of imprisonment of the secretion of the testes by acquired obstruction of the vasa deferentia.

C.—FAILURE OF THE TESTES TO DESCEND INTO THE SCROTUM.

When the testes fail to descend into the scrotum, and are retained in the abdomen or the groins, they are generally small and undeveloped, and now and then atrophied through fibrous or fatty degeneration. As a result of these malpositions and morbid changes, cryptorchids were, up to a comparatively recent date, declared to be abso-

¹ Quoted by Godard in his Note sur l'Absence Congéniale du Canal Excréteur et du Réservoir de la Semence, le Testicule Existant. *Ibid.*, p. 335.

² Works by Palmer, vol. iv. p. 23.

lutely sterile, although they were known to enjoy the capacity for copulation and ejaculation. Opposed to this opinion, which was maintained by Follin,¹ Gosselin,² Godard,³ Liégeois,⁴ and formerly by Curling,⁵ are the instances recorded by Poland,⁶ Cock,⁷ Durham,⁸ and Debrou,⁹ of married cryptorchids who had procreated children. It is highly probable that fecundation in these cases was due to another source, a supposition which is strengthened by the fact that spermatozoa were not observed in the patient of Debrou after death from strangulated hernia, and that the ejaculated fluid does not appear to have been minutely examined in the others; and there is other evidence which proves that the retained testes may perform their functions. Thus, Beigel¹⁰ narrates the case of a man, two-and-twenty years of age, whose testes were situated in the groins, and whose emitted semen disclosed spermatozoa; and Vallette¹¹ found those bodies in the *vasa deferentia* of an inguinal cryptorchid.

On the whole, the evidence in regard to cryptorchids shows that while, as a rule, they are potent, and ejaculate a fluid which is devoid of spermatozoa, exceptional instances indicate that they may be fertile. This opinion is held by Casper;¹² but the question of fecundity should always be determined by microscopical examination of the ejaculated

¹ Archives Générales, sér. 4, t. vi. p. 257.

² Ibid., sér. 4, t. ii. p. 268.

³ Études sur la Monorchidie et la Cryptorchidie, p. 143.

⁴ Medical Times and Gazette, 1869, vol. ii. p. 248.

⁵ Brit. and For. Med.-Chir. Rev., April, 1864, p. 495 et seq.

⁶ Guy's Hospital Reports, ser. 2, vol. i. p. 162.

⁷ Curling, op. cit., 4th ed., pp. 470 and 471.

⁸ Ibid.

⁹ Ibid.

¹⁰ Virchow's Archiv, Bd. xxxviii. p. 144.

¹¹ Pitha und Billroth's Handbuch, Bd. iii., Abth. ii., Lief. 7, p. 419.

¹² Forensic Medicine, Syd. Soc. ed., 1864, p. 256.

semen of such persons when they are contemplating matrimony.

D.—AFFECTIONS OF THE TESTES.

Disorders of the testes are liable to be accompanied with temporary or permanent absence of the spermatozoa. In six cases of bilateral atrophy, Liégeois¹ found that these bodies were greatly diminished; and they are not formed when the wasting is excessive. The only instances in which the semen has been examined in the latter condition, of which I have any knowledge, are three recorded by Curling,² and one by Laborde and Cousrem³ and spermatozoa were absent in all. Simple parenchymatous orchitis, and total disorganization of the substance of the testes, from whatever cause they may arise, as well as fatty degeneration of the secreting cells, a condition met with in hard drinkers, are followed by absolute azoospermism. Partial destruction by malignant, tubercular, cystic, and other new formations, on the other hand, does not necessarily occasion sterility. Syphilitic orchitis, when pronounced, generally abolishes the functions of the organs, but spermatozoa may return under proper treatment. It need scarcely be added that loss of the testes, as from castration, renders the subject permanently azoospermous, although he may for a certain time ejaculate the fluid of the accessory glands, a phenomenon which is referred to on page 75.

Godard⁴ has called attention to the singular fact, which he confirmed by examination of the ejaculated semen and

¹ Loc. cit., p. 541.

² Op. cit., pp. 69 and 83.

³ Comptes Rendus de la Société de Biologie, 1859, p. 248.

⁴ Ante.

of the contents of the seminal vesicles, that one tubercular testis renders the subject absolutely sterile; and, what is more astonishing, he found that the azoospermism preceded the development of the tubercular affection from one to two years. Hence, he utilizes this condition for the differential diagnosis between unilateral tubercular orchitis and ordinary orchitis, in the latter of which fertile semen is secreted.

E.—BILATERAL OBLITERATION OF THE EPIDIDYMIS AND VAS DEFERENS.

By far the most frequent and important of the causes of azoospermism is bilateral obliteration of the epididymis and vas deferens, through which the proper secretion of the testes is confined, and is prevented from reaching the vesiculæ seminales and the urethra, and the ejaculated fluid is of necessity deprived of spermatozoa. Obliteration of the seminal passages, as Gosselin¹ first pointed out, is usually due to gonorrhœa, when it is, with few exceptions, confined to the epididymes, the vasa deferentia alone being rarely involved. I am not aware that it has ever been traced to traumatic inflammation, as wounds and contusions are generally limited to one side. Tubercular deposits in the epididymes not uncommonly occasion sterility; and a few examples are recorded of azoospermism from bilateral sarcomatous or carcinomatous degeneration of the epididymis. I have myself witnessed the same result in a case of double syphilitic epididymitis, the indurations having made their appearance on the seventy-second day after the first observation of the initial lesion.

¹ Archives Générales, sér. 4, t. xiv. p. 406, and t. xv. p. 40; and sér. 5, t. ii. p. 257.

A most important inquiry in connection with obliteration of the excretory apparatus of the testes is, whether the functional activity of the opposite gland is abrogated when the lesion is confined to one side. Liégeois¹ found in thirteen examinations of the discharge of persons affected with unilateral epididymitis that the number of spermatozoa was greatly diminished; and he refers to three cases of Hirtz, Duplay, and Gosselin, in which the spermatic fluid was entirely devoid of those bodies. As the same occurrence is witnessed in tubercular epididymitis of one side, Liégeois believes, and Ultzmann² agrees with him, that the testes are so closely united by reflex ties that unilateral epididymitis may abolish the functions of the opposite gland, and thereby produce sterility. This conclusion is supported by five cases of unilateral epididymitis in which spermatozoa were entirely absent, recorded by Kehrer;³ but it is utterly at variance with observations based upon analogous conditions. Duplay, for example, has reported six instances of obliteration of one vas deferens with spermatozoa in the epididymis of the opposite side; and Godard shows that congenital absence of one excretory duct, or even of one testis, exerts no effect upon the generative functions.

In bilateral gonorrhœal epididymitis the inflammatory new material may be seated in the interior of the canals, in their walls, or in the interstitial connective tissue, and the resulting obstruction or induration is very liable to be permanent and incurable, since, of eighty-three cases recorded by Gosselin, Godard, and Liégeois,⁴ the spermatozoa returned in only eight. The testes themselves continue to secrete and preserve their normal volume and appearances,

¹ Loc. cit., p. 541.

² Op. cit., pp. 79 and 82.

³ Wiener Klinik, 1879, p. 156.

⁴ Loc. cit., p. 380.

and as the subjects ejaculate they are not aware that they are sterile. Liégeois found in twenty-one instances that impotence was present in eight; but of twenty cases observed by Gosselin all were thoroughly potent. The former¹ states that the ejaculated fluid is rarely milky-white, as in the normal condition, and that it possesses a yellowish tint when leucocytes are present in large numbers; while Gosselin² could not trace any variations from the natural color, quantity, odor, and consistence. In a case of azoospermism from double epididymitis, Nepveu³ detected in the discharge hyaline cylinders which were casts of the vasa deferentia, and which frequently attained a length of from three to five centimetres.

F.—ABNORMAL CONDITIONS OF THE SEMEN.

The quality and composition of the ejaculated seminal fluid are liable to be materially altered by sexual excesses, by various exhausting diseases, and by inflammatory conditions of the epididymes, vasa deferentia, seminal vesicles, prostate, and urethra, which are entitled to a detailed examination.

a. Temporary, or physiological, absence of the spermatozoa may be induced, in perfectly healthy men, by *sexual excesses*, and the frequent repetition of the act of coition renders the semen more and more watery and scanty, so that it consists merely of the secretions of the accessory glands. In the case of a medical student, recorded by

¹ Loc. cit., p. 511.

² Archives Générales, sér. 5, t. ii. p. 267.

³ Gazette Médicale de Paris, 1874, p. 32.

Liégeois,¹ who indulged in three or four connections daily for ten successive days, repeated examinations of the emissions demonstrated the complete absence of spermatozoa. Some months later, after an abstinence of three weeks, they were detected in large numbers. The case of Casper² is so interesting in this respect that it is quoted entire: "A vigorous naturalist, sixty years of age, a married man, and father of a large family, and accustomed to the use of the microscope, whom I had interested in this question, examined with me for some time continuously his own semen after coitus. Here we found the greatest variations, which were accurately noted by both of us together. After coitus on the third day, reckoning from the last performance of the act, there was a large number of very small spermatozoa; after renewed coitus on the fourth day, few and small; after a pause of only two days, none; after a pause of only one day there was only a watery sperma, in which no zoosperms were found. At another time, on the fifth day after the last coitus, the zoosperms were very numerous; another time, after a pause of six days, they were few, but large in size; four months after the last examination, and seventy-two hours after the last act, the zoosperms were comparatively very small, and at another time, on the third day after the last act, they were innumerable. Immediately after coitus, and before emptying the bladder, the urethra was twice examined. Twenty-four hours after the last act, a drop passed out of the urethra exhibited numerous small zoosperms; at another time, after a three days' interval, there was not a single zoosperm."

The foregoing observations are corroborated by experi-

¹ Loc. cit., p. 247.

² Op. cit., p. 292.

ments on animals. Thus, Plönnies,¹ by electrical irritation of the spinal cord of dogs, has proved that the frequent repetition of seminal evacuations results not only in a striking diminution in the quantity of semen and spermatozoa, but frequently in the entire absence of the latter. Hence, erection and ejaculation may be entirely normal, without the semen containing fructifying elements.

Permanent absence of the spermatozoa is said to occur now and then as an idiopathic affection. The only cases bearing upon this point, of which I have any knowledge, are those narrated by Hirtz.² Two young, robust, married, but childless men, performed coition with unusual vigor. The ejaculations were never followed by the sense of fatigue so generally experienced after intercourse, and the fluid was void of spermatozoa. While it is impossible to explain these cases satisfactorily, I am inclined to believe that the "unusual vigor" which they displayed points to their having indulged too often in proportion to their powers, and that they are to be classed among the cases of azoospermism from sexual excesses.

β. One of the most common causes of infertile semen is *nervous exhaustion* or *neurasthenia*, attended with abnormal seminal and prostatic discharges, and with various degrees of impotence. This condition is usually brought about by onanism, venereal excesses, or ungratified desires, and may be regarded as an exaggerated or advanced stage of the preceding variety of azoospermism. As a result of impaired nutrition, induced by perverted innervation, the secretory activity of the testes is interfered with, and either the evolution of the spermatozoa is arrested, or their num-

¹ Inaug. Diss. Rostock, 1876.

² Gazette de Strasbourg, No. 5, 1861.

ber and their activity are diminished. In addition to this factor, it is highly probable that the zoosperms are unable to exist in the altered prostatic fluid, since the microscope shows that they are motionless, and thereby confirms the view of Kraus and Wilson, to which allusion has already been made in the study of normal semen, that the vitality of the spermatozoa is dependent upon the presence of the healthy secretion of the prostate.

The investigations of Rosenthal,¹ Ultzmann,² and Curschmann³ demonstrate that, when potency is as yet little affected, and pollutions are merely beginning to overstep the natural limits, the ejaculated fluid is unchanged. When the pollutions are more frequent, and there are diurnal discharges, the spermatozoa are smaller and more scanty; their movements are less active than in the normal condition, are liable to be abolished in less than an hour, and are incapable of being reawakened by alkaline solutions. Spermatic crystals, moreover, form more rapidly, and in greater abundance than in health. In the worst cases, or in those characterized by diurnal and nocturnal pollutions, and by the presence of semen in the urine, the spermatozoa are either entirely absent, or, if they are present, they are motionless, stunted, or variously deformed. In these advanced instances the semen is frequently seen to have undergone fatty degeneration, as indicated by granular epithelium, by molecular detritus, and even by oil globules in the protoplasm of the altered spermatozoa. Spermatic crystals are also abundant, and appear quickly.

These observations are in accord with those of Lalle-

¹ Wiener Klinik, May, 1880, p. 137.

² Wiener med. Presse, 1876, p. 599.

³ Ziemssen's Cyclopaedia, Amer. ed., vol. viii. p. 852.

mand;¹ and I have been able to confirm them by the few examinations that I have made, to which I allude in the succeeding chapter, and of which the following case is a good illustration:

CASE XXII. A commercial traveller, forty-five years of age, who had masturbated a great deal in his youth, and who had contracted gonorrhœa twenty years before I saw him, states that he has been constantly annoyed for the last two years by a discharge which is increased by straining at stool, and by toying with women without gratifying his passions, a practice in which he indulged, as he feared to have sexual congress on account of feeble erections. I detected a stricture, calibre 19, at five inches and a half from the meatus, along with a granular patch immediately behind the coarctation, and hyperæsthesia of the prostatic urethra. On withdrawing the explorer, the bulb brought away a considerable discharge, which, under the microscope, presented a few pus corpuscles, granular epithelium, and detritus, and a few motionless and deformed spermatozoa, several of which were occupied by fat globules. On examining the slide a few hours subsequently, I also discovered numerous spermatic crystals.

Fatty degeneration of the spermatozoa has also been observed by Bianchi² as rod-like bodies made up of shining points, which disappeared on the addition of ether.

In a case of impotence from masturbation, complicated by spermatorrhœa, Heitzman³ found that the heads of the zoosperms were not much wider than the tails, and that their movements were very feeble.

7. The relation of general diseases to anomalies of the semen
is a subject in regard to which widely different views are

¹ Op. cit., 3d Amer. ed., Phila., 1858, p. 265.

² Schmidt's Jahrbücher, 1879, Bd. clxxxi, p. 38.

³ New York Med. Journal, August, 1879, p. 158.

entertained. While there is no reason for believing that acute maladies impair the fertility of the semen of adults, it is quite certain that both acute and chronic affections of old age, and chronic diseases in the adult, not infrequently lead to a suspension of the evolution of spermatozoa.

The investigations in this direction have been confined almost exclusively to consumptives, in whom, as is well known, the parenchyma of the testes is usually very moist, pale, and anæmic, and in whom the epithelium of the tubules has not uncommonly undergone fatty degeneration. The frequency of azoospermism in phthisis, despite the changed condition of the testes, has, however, been greatly exaggerated. Lewin,¹ Davy,² Duplay,³ and Dieu⁴ examined the secretions of the epididymes, vasa deferentia, and vesiculæ seminales of thirty-five persons dead of pulmonary tubercle, and found spermatozoa in twenty-three, or 65.7 per cent.; and in thirteen inspections of the fluid at the orifice of the urethra, or pressed out of that passage, Lewin discovered zoosperms in eight. Hence, the semen contained fertile elements, and usually as numerous as in healthy persons, in thirty-one, or 64.5 per cent., of forty-eight subjects dead of phthisis; and what is remarkable is the fact that they were present in 62.5 per cent. of the semen of old persons, and in 65 per cent. of that of adults principally between thirty and forty years of age. The accuracy of these investigations has recently been confirmed by Busch,⁵ who detected spermatozoa in the fluids obtained from the testes, epididymes, and vasa deferentia of twenty-eight, or 66.6 per cent., of forty-two phthisical subjects; but it is to be

¹ Deutsche Klinik, 1861, p. 319.

² Edinb. Med. and Surg. Journ., July, 1839, p. 1.

³ Ante.

⁴ Ante.

⁵ Ztschr. f. Biol., Bd. xviii. p. 496.

noted that they were abundant in only eight. From these statements, it will be seen that the semen of consumptives contains zoosperms far more frequently than certain writers would lead us to believe. Godard was of the opinion that spermatozoa were absent in persons who had become consumptive at the age corresponding to the establishment of the spermatic secretion; but that they persisted when tuberculosis began after that period.

That acute and chronic diseases do impair the fertility of the semen of persons advanced in life is well shown by the investigations of Duplay and Dieu, since of 156 instances in which the fluid contained in the vasa deferentia or vesiculæ seminales of old men was examined, spermatozoa were found in only one-half. Dividing the cases in accordance with the periods of life—

Of 25 sexagenarians	spermatozoa were discovered in 17, or 68 per cent.	
" 76 septenarians	" " "	40, " 59.2 "
" 51 octogenarians	" " "	19, " 37.2 "
" 4 nonagenarians	" " "	0.

In none were they present after the age of eighty-six, and they decreased pari passu with advancing years.

On analyzing the causes of death, I find that spermatozoa were entirely absent in affections of the urinary organs; that they were present in only 38 per cent. of diseases of the nervous system; and that they were discovered, respectively, in 68, 70, and 81 per cent. of disorders of the lungs, the digestive organs, and the heart. Hence, we may assume that while diseases of the kidney and brain exert a most prejudicial influence upon the formation of zoosperms, affections of the other great systems interfere with their development to only a slight extent.

Of the 76 cases in which spermatozoa were found, they were abundant in 50, and fewer than usual in 26. They

were perfectly formed in 54; and in 22 their tails were absent or shortened, and they varied in size. From these facts we may infer that the inability of old men to procreate arises more from impotence than from the composition of their semen; and this view is supported by the fact, based upon 51 examinations made by Duplay¹ of the testes of men from sixty to eighty-six years, that the secreting organs are perfectly normal in structure, and only slightly diminished in size and weight.

The gross appearances of the seminal fluid of old men are worthy of notice, since, in the absence of minute examination, they afford inferential aid in deciding the question of the absence or presence of spermatozoa. When the secretion is of a more or less transparent grayish tint, thick, viscous, and abundant, it is almost always fertile; but when it is scanty, and either watery or gelatinous, spermatozoa are almost always absent; and a deep brown color, which is due to broken-down blood and pigment, favors the latter view.

Constitutional syphilis does not appear to exert much influence upon the secretion of the testes, since Liégeois² and Bryson³ detected spermatozoa in the fluid ejaculated by syphilitic subjects in sixteen cases out of twenty-one, and Lewin⁴ found them in three out of six examinations of the contents of the excretory seminal apparatus of men dead of that affection.

Under this head may be mentioned the altered composition of the semen produced by the *excessive use of morphia*, to which attention has been called by Rosenthal.⁵ A man

¹ Archives Générales, sér. 5, t. vi. pp. 136 and 439.

² Loc. cit., p. 380.

³ New York Medical Abstract, July, 1882, p. 274.

⁴ Loc. cit., p. 319.

⁵ Wiener Klinik, May, 1880, p. 149.

had injected under the skin, on account of cephalgia and insomnia, from nine to twelve grains of morphia daily for three years. Paralysis of the bladder finally ensued ; and examination of the whitish fluid, which was occasionally forcibly expelled with the last drops of urine, demonstrated spermatic crystals, but no spermatozoa. Under proper treatment, at the expiration of a month, when the morphia had disappeared from the urine, a specimen of the semen ejaculated during coition was found to contain living zoosperms, but they were not so abundant or so lively in their movements as under normal circumstances. In a second case, in which nearly eight grains of morphia had been injected daily for one year, minute examination of a nocturnal pollution disclosed a few deformed and motionless spermatozoa, which did not react on the addition of a weak alkaline solution.

δ. Abnormal density of the semen may render it unfit for fecundation. Beigel¹ narrates a case in which the genital organs were normal, but in which repeated examinations of the ejaculated fluid showed that it was thicker and more viscous than is usual, and that the spermatozoa were motionless and closely grouped side by side. The addition of a few drops of tepid water put them in lively motion ; so that the injection of a small amount of lukewarm water into the vagina, after coition, was advised, and the woman subsequently bore several children.

ε. Purulent semen, which is met with principally in inflammation of the epididymes, vasa deferentia, seminal vesicles, and prostate, may occasion the death of its essential

¹ Krank. des Weibl. Geschlechts, Bd. ii. p. 791.

anatomical elements, as in the following case, which was under my care in 1883 :

CASE XXIII. A gentleman, thirty years of age, contracted gonorrhœa in 1870, or rather more than ten years before I saw him, and at the end of six weeks was attacked by bilateral epididymitis, which confined him to his bed for a fortnight. Up to 1873 he had always had an ejaculation on coition, but during the succeeding two years he indulged so rarely that he does not remember whether he had a discharge or not. He married in 1875, and although he has always had good erections, intercourse was not completed with an emission; but by pressing along the course of the urethra, he could force a drop of sticky fluid out of the meatus. Exploration discovered a stricture, calibre 14, at five inches and three-quarters, and great hyperæsthesia of the prostatic urethra. The seminal vesicles and prostate were tender on pressure with the finger in the rectum. Having detected these morbid conditions, I learned, on further questioning, that intercourse was painful, and that there was a constant feeling of dull, heavy pain in the rectum which was increased at stool. On the 12th of January, 1881, he brought me the entire quantity of urine passed less than an hour after intercourse. Examination of the sediment, as well as of the discharge which I removed from the urethra with the bulbous explorer, disclosed rather abundant pus corpuscles and epithelial cells, with some of the latter undergoing fatty degeneration, crystals of oxalate of lime, spermatic crystals, and a few stunted or tailless and dead spermatozoa. The case was, therefore, one of sterility from aspermatism dependent upon stricture of the urethra, and of azoospermism from inflammation of the seminal vesicles.

Examples of symmetrical spermatocystitis, with complete absence of spermatozoa, have been reported by Marcé,¹ Laborde,² and Octave Guelliot ;³ and Heitzman⁴ has met with

¹ *Gazette des Hôpitaux*, 1854, p. 597.

² *Gazette Médicale de Paris*, 1859, p. 468.

³ *Des Vésicules Séminales*, Paris, 1883, pp. 124 and 131.

⁴ *New York Med. Journ.*, August, 1879, p. 158.

an instance of unilateral spermatocystitis in which those elements were also destroyed.

Terillon,¹ in 1880, pointed out that the ejaculated fluid in acute bilateral gonorrhœal epididymitis is of a yellowish tint verging on green, and that, while it contains abundant pus corpuscles and a few large granular corpuscles, spermatozoa are nearly always absent. Thus of twelve cases in which the semen was examined at from ten to ninety days after the implication of the second testis, or on the thirty-ninth day, on an average, there were no spermatozoa in eight, a few living ones in three, and an abundance in one. Even several years after the complete subsidence of the acute symptoms, when the epididymes and vasa deferentia are normal in volume and consistence, though tender on handling, the discharge may retain the same characters, but in a less pronounced degree; and Terillon illustrates this important statement by a case in which yellowish azoospermous semen, which contained relatively few pus corpuscles, continued to be emitted six years after the cessation of the inflammation. The man had been married four years, but had not procreated children.

In the preceding examples it has been seen that the vitality and the changes in the form and dimensions of the essential anatomical elements of the semen were associated with purulent inflammation of the excretory passages of that fluid, so that the inference is justifiable that pus is destructive of their evolution and life. This view is supported by the researches of Levy² on the influence exerted upon the viability of the spermatozoa by the perverted secretion of the glands of the cervix in endometritis. Of fifty-seven

¹ Des Altérations du Sperme dans l'Épididymite Blennorrhagique. *Annales de Dermatologie et de Syphiligraphie*, sér. 2, t. i. p. 439.

² Aerztliches Intelligenzblatt, 1879, Bd. xxvi. pp. 3 and 12.

cases in which the secretion after coition contained an abundance of pus corpuscles and epithelial cells, in not a single one were many spermatozoa detected, and in none did their movements, which were feeble from the first, continue for more than five hours ; whereas he frequently found that they were vigorous in the cervical mucus of healthy women for twenty-six hours after congress.

In none of these cases were the phenomena to be ascribed to the reaction of the discharge. Sims¹ states that when the cervical secretion is rich in epithelial cells it proves destructive of the spermatozoa ; and he ascribes this action to its density and not to its chemical action. He,² moreover, thinks that catarrh of the prostate is as deleterious as is uterine catarrh ; and there is, indeed, no reason why a mucopurulent discharge of the urethra should not kill the spermatozoa. Noeggerath³ believes that it acts as a poison ; and in a letter which I received from him in 1883, he says, "the poison in the secretion is certainly not the pus corpuscle, but the micrococci which infest, not only the leucocyte, but also the menstruum in which it is found ;" and he refers me to a paper on the subject by Neisser, which, however, is not available. While these views are hypothetical, they are worthy of further investigation, as they would seem to be substantiated by a case of sterility from diabetes mellitus recorded by Beigel,⁴ in which examination of the semen contained in the urine disclosed, in addition to fragments of spermatozoa, abundant micrococci and a few cryptococci.

¹ Uterine Surgery, p. 390.

² New York Med. Journ., vol. viii. p. 407.

³ Trans. Amer. Gynec. Soc., vol. i. p. 287.

⁴ Krank. des Weibl. Geschlechts, Bd. ii. p. 791.

5. *Bloody semen* is an occasional cause of azoospermism, the essential elements being, as a rule, diminished in number and frequently motionless or dead, and, in some cases, entirely absent. When furnished by an inflamed prostatic urethra, as in one of my patients suffering from bloody ejaculations, no influence appears to be exerted upon the number and movements of the spermatozoa, and Robin¹ states that they live in blood for four or five hours. When, however, the seminal vesicles are the seat of the hemorrhage, and the blood has been retained for some time in those reservoirs, being intimately mixed with the semen, the secretion is rust-colored, or of a dark brown or chocolate tint, and the spermatozoa are either greatly reduced in number or altogether wanting, as pointed out by Dieu. These facts are illustrated by a case of chronic spermato-cystitis recorded by Rapin,² and by two cases of a similar nature observed by Guelliot.³ When the bleeding is the result of gonorrhœal epididymitis, the effect produced upon the fructifying elements is less marked than when it is induced by inflammation of the seminal vesicles. Thus, in three examples from the practice of Mollière,⁴ the spermatozoa were dead in notable numbers, while in one instance recorded by Fürbringer⁵ they were numerous and in active motion at the end of three days. From these considerations it follows that azoospermism from sanguineous semen is usually dependent upon hemorrhage connected with spermato-cystitis.

¹ Dict. Encyclop. des Sciences Médicales, 3d sér., t. xi. p. 160.

² Thèse de Strasbourg, 1859, No. 491, Obs. II.

³ Op. cit., pp. 208 and 221.

⁴ Dict. Encyclop. des Sciences Médicales, 3d sér., t. xvi. p. 599.

⁵ Volkmann's Vorträge, No. 207, p. 1847.

DIAGNOSIS.—The discrimination between anorchids and cryptorchids with the testes retained in the abdomen is readily made, when it is remembered that the former are impotent, while the latter complete the sexual act in the usual manner. If spermatozoa have never appeared in the discharge, the question of congenital absence of the epididymes, or of want of union of the *vasa deferentia* with the seminal vesicles or the epididymes, may be entertained.

In all other cases the diagnosis is to be established by repeated examinations of the semen, since, as we have already seen, that fluid is liable to undergo various changes in sterility from sexual excesses, masturbation, ungratified venereal desire, obstruction of the epididymes, prostatitis, *spermato cystitis*, and *epididymitis*. Normal semen slowly throws down a white sediment, which constitutes from one-third to one-half of the discharge, while *azoospermous* semen rapidly precipitates a slight sediment. Under ordinary circumstances, the formation of spermatic crystals is delayed until the second or third day after ejaculation, and their number is small. In semen deprived of spermatozoa, on the other hand, the crystals appear in half an hour; or somewhat later, if there are few spermatozoa. The earlier, therefore, a sediment is deposited, and the more rapidly and abundantly spermatic crystals form, the less fertile is the discharge.

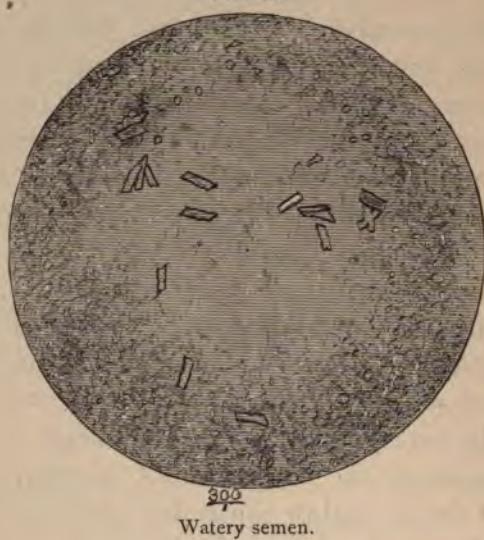
Ultzmann¹ describes the following varieties of semen in which spermatozoa are not found, and his observations have been confirmed by myself and other observers:

First, watery, transparent semen, which is normal in quantity, and becomes gelatinous immediately after emis-

Wiener med. Presse, 1876, p. 599, and 1878, p. 78; and Wiener Klinik, 1879, p. 156.

sion, as does the normal secretion. It, however, resumes its fluid state when it is thoroughly cooled, and presents a whey-like appearance. Its relatively slight sediment shows,

FIG. 14.



Watery semen.

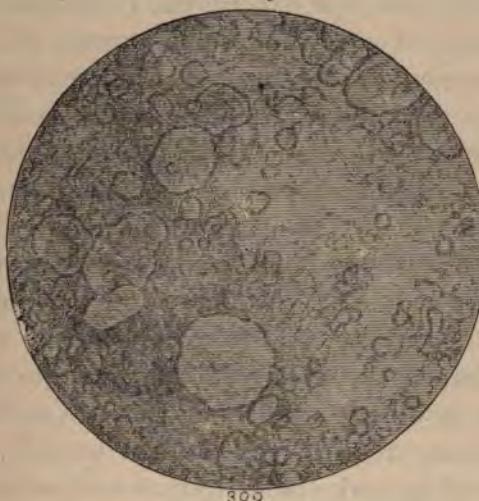
under the microscope, as in Fig. 14, perfect spermatic crystals, a few lymph corpuscles, cylinder epithelium, and an abundance of fatty detritus.

Secondly, colloid sperm, Fig. 15, which differs from the normal discharge only in the absence of spermatic crystals and spermatozoa, and in the presence of abundant epithelium which has undergone colloid degeneration, and of laminated spherical masses of various dimensions.

Thirdly, catarrhal and purulent semen, which deposits a tolerably abundant whitish or yellowish sediment, is of normal consistence and quantity, and contains an abundance of epithelium, leucocytes, and a few blood corpuscles, and occasionally a few deformed and motionless spermatozoa.

To these varieties I may add, fourthly, bloody semen, which has a dark brown or chocolate tint, from the intimate admixture of the two fluids in the seminal vesicles, and

FIG. 15.



Colloid semen.

which contains small clots, numerous normal and altered red corpuscles, pigmented granules, and minute sympexions.

When the semen is discharged with the urine, it is to be remembered that the movements of the spermatozoa are arrested if the latter fluid is acid or ammoniacal; whereas they are not materially interfered with if the urine is neutral or slightly alkaline.

PROGNOSIS.—Azoospermism offers, in the large majority of cases, little encouragement as regards the prospect of permanent relief; and the prognosis depends upon its exciting cause and the amenability of the cause to treatment.

In congenital absence of the testes or deficiency of their

excretory passages, cryptorchidism, progressive atrophy, parenchymatous inflammation, and total disorganization from tubercle and morbid growths, as well as in tubercle, sarcoma, and carcinoma of the epididymes, the absence of spermatozoa is, with few exceptions, permanent and absolute. In cases of arrest of development, the prognosis should be guarded, since the testes may resume their proper functions under amorous influences. Thus, in the remarkable example recorded by Wilson,¹ the penis and testicles of a man, twenty-six years of age, were not larger than those of a boy of eight years of age. He had never had sexual desires until he met his intended wife; and in two years after marriage he had become a father, and the organs had increased nearly to the usual size. The chances in favor of a return of the fecundating elements are good when the affection arises from sexual excesses, masturbation, or ungratified passion, overindulgence in morphia, and epididymitis from ordinary causes; while they are not promising in cases of syphilitic epididymitis and orchitis, and in gonorrhœal epididymitis. Liégeois² examined the semen of twenty-eight persons affected with bilateral epididymitis, and there were no spermatozoa in twenty-one. Of the seven in which spermatozoa had returned, only two were of gonorrhœal origin; so that the prognosis is far more favorable when the induration depends upon common causes than when it follows blennorrhagia. In the gonorrhœal cases with a return of zoosperms, the induration lasted only ten days in one, and in the other only one side was seriously affected; while in those in which the azoospermism was permanent, the

¹ Lect. on the Urin. and Gen. Organs, p. 424.

² Loc. cit., p. 380.

inflammation had lasted from fifteen to sixty days. Hence, the light cases are of far more favorable prognostic import than the intense ones. Liégeois, moreover, found that the induration persisted partially or completely in fifteen of the twenty-one cases of absolute azoospermism ; but that the epididymes seemed normal to the touch in six. Of the seven in which the functions of the testes were reëstablished, five were free from induration ; and in two, which were not of gonorrhœal origin, the induration persisted ; so that absence of swelling and hardness is not positively indicative of a return of fertility. In such cases the canal of the epididymis is strictured or obliterated.

As a prognostic aid, the ejaculated fluid should be examined in all cases of bilateral epididymitis. If it presents the characters of watery or colloid sperm, the absence of spermatozoa will, in all probability, be permanent.

TREATMENT.—The management of azoospermism is, as a rule, most unsatisfactory. When it depends upon chronic debilitating diseases and the excessive use of morphia, the remedies are to be addressed to the primary affection and to the breaking up of the habit. Abstinence is enjoined when it is due to sexual excesses or masturbation ; and moderation should be observed when the functions of the testes are restored.

In advancing atrophy of the testes, provided it is not a symptom of lesions of the cerebro-spinal system, galvanism holds forth some prospect of success. The positive pole should be applied over the lumbar portion of the spinal column, and the negative pole should be passed over the affected organs, the precautions being taken to employ weak currents and to limit the daily sittings to two or three minutes.

Azoospermism in cryptorchids may be prevented if the subjects are seen sufficiently early in life, and if the testes are retained in the groins, by carrying out the suggestion of Curling¹ to promote their descent into the scrotum by gentle and repeated traction. In children the retained organs enjoy great mobility; and the manœuvres might succeed in adolescents and young adults, in whom the testes are, however, usually fixed. Sir Astley Cooper witnessed in "many cases" their descent from the thirteenth to the seventeenth year, and even as late as the twenty-first year; and I myself have known it to occur still later, as in the following example:

CASE XXIV. In a widower, forty-six years of age, under my care for impotence in 1883, the right testis remained in the inguinal canal until six months after his marriage, at the age of twenty-four, when it passed into the scrotum, and is now soft, tender, and of about one-third the volume of its fellow. In its descent it was accompanied by a portion of the intestine.

The arrest of the evolution of spermatozoa in syphilitic orchitis may be anticipated, if the disease be recognized within a few weeks, by the internal administration of iodide of potassium and bichloride of mercury; or the latter agent may be replaced by mercurial inunctions, the testes in the meanwhile being properly supported. Syphilitic epididymitis, which I have occasionally met with as a secondary symptom, readily yields to a mercurial course.

In bilateral epididymitis early and vigorous antiphlogistic treatment will usually preserve the functions of the testes. The means upon which I place the most reliance are strict recumbency, light diet, a brisk purgative, the saline and

¹ Op. cit., p. 38.

antimonal mixture with a few drops of tincture of aconite pushed to the extent of provoking slight nausea, and keeping the parts well elevated and surrounded with absorbent cotton, wet with a strong solution of acetate of lead and laudanum. If, despite these measures, indurations remain after the active symptoms have subsided, they may frequently be made to disappear under the exhibition of iodide of potassium and bichloride of mercury, along with the local use of mercurial ointment, or oleate of mercury, or an ointment composed of one drachm of iodoform, two drachms of balsam of Peru, two drops of oil of gaultheria, and five drachms of cosmoline. This treatment should be steadily maintained, as the most chronic cases may terminate favorably. Thus, Gosselin, Godard, and Curling record a return of spermatozoa after eight, eighteen, and twenty-four months; and Godard even narrates an instance of cure in which the indurations had lasted for ten years. In all cases particular care should be observed to guard against recurrence of the inflammation.

Finally, when the semen is too thick, as in the case of Biegel, narrated on page 98, although nothing can be done in the way of medication, so far as the man is concerned, impregnation may be insured by the injection of a small quantity of saccharine or alkaline tepid water into the vagina after sexual congress.

SECT. III. ASPERMATISM.

Aspermatism is the variety of sterility in which sexual intercourse is not finished with the ejaculation of semen, either because that fluid does not enter the urethra, or

because its forcible expulsion is prevented by some obstacle in the urethra anterior to the prostate gland. The term is, therefore, restricted to those cases in which the lesions are seated between the seminal vesicles and the urinary meatus.

Nonemission may be congenital or acquired, and permanent or temporary; and it may depend, first, upon seminal fistulæ; secondly, upon obstruction of the ejaculatory ducts or the urethra; thirdly, upon deficient excitability of the spinal ejaculatory centre; fourthly, upon abolished sensibility of the nerves of the penis; and, fifthly, upon the inhibitory action of the brain over the centre for ejaculation. Hence, in accordance with its etiology, it may be Organic, Atonic, Anæsthetic, and Psychical.

A.—ORGANIC ASPERMATISM.

The discharge of seminal fluid into the urethra may be prevented, α , by seminal fistulæ; β , by congenital vices; γ , by inflammatory lesions of the ejaculatory ducts and the prostate; and, δ , by sympexions; and the escape of semen from the urethra may be due, ϵ , to stricture of that passage, to a tight phimosis, or to induration of the corpora cavernosa.

α . *Seminal fistulæ*, the result of wounds or pathological lesions of the seminal vesicles and their excretory ducts, may constitute a cause of nonemission. Thus, Sabatier¹ refers to a case of rectovesical lithotomy, followed by the establishment of a fistulous tract between the two cavities, through which the semen was ejaculated into the rectum;

¹ Méd. Opér., 1832, t. iv. p. 342.

and in a case of a similar nature, from the practice of Simonin,¹ there was no external escape of the semen in masturbation, and it was mixed with the feces after coition. Covillard² has recorded a curious instance of the passage of urinary calculi through fistulous openings in the perineum and inner side of the thigh, in which the semen followed the same routes.

β. Congenital occlusion, absence, and deviation of the ejaculatory ducts have been rarely met with. Schmitt³ examined a man, thirty-five years of age, who had never had an emission either when awake or asleep, although his power to cohabit was unimpaired. He had not suffered from gonorrhœa, and his external organs were perfect; but the prostate could be felt through the rectum merely as a small, flat body, and the seminal vesicles appeared to be atrophied. Ultzmann⁴ records two cases of vigorous men, in whom, as in the preceding instance, there was no history of gonorrhœa, and who had never been able to ejaculate during coition or under the influence of a dream, although nothing abnormal could be discovered in regard to their reproductive organs. Munroe⁵ describes a similar condition of affairs in a robust man, twenty-eight years of age. Under no circumstances had there ever been an emission; but a drop or two of clear mucus could be pressed out of the urethra after intercourse, and examination of the urine passed soon afterwards disclosed abundant spermatozoa.

While in the case of Schmitt it is highly probable that

¹ Bull. et Mém. de la Soc. de Chir., 1880, t. vi. p. 166.

² Observations Iatrocirurgiques, 1839, Obs. 9.

³ Würzburg med. Zeitschrift, 1862, Bd. iii. p. 361.

⁴ Wiener Klinik, January, 1885, p. 5.

⁵ Boston Med. and Surg. Journ., Feb. 21, 1867, p. 62.

the atrophied prostate occluded the ejaculatory ducts, the cause of the trouble in those of Ultzmann must remain a matter of conjecture, although he ascribes it to congenital absence of excitability of the reflex centre for ejaculation. As the men, however, never emitted seminal fluid, we may assume that the ducts were obliterated, or absent. That the latter inference is not unfair is attested by a preparation¹ in the Hunterian Museum, in which the ducts are wanting, and in which the remainder of the sexual organs are completely developed, as well as by a case of a newly born child, described by Rindfleisch,² in which the ducts were impermeable. In the case of Munroe there was doubtless a congenital deviation of the orifices of the ducts, so that the semen regurgitated into the bladder during intercourse.

v. Acquired stricture or obliteration of the ejaculatory ducts and deviation of their orifices, the results of inflammation or injury, are among the most common causes of organic aspermatism, although the evidence of their existence is based, for the most part, on the symptoms presented during life. In his researches on the condition of the genital organs of old men dead of acute and chronic diseases, Duplay³ made some interesting observations, which afford post-mortem proof that the ejaculatory ducts undergo certain alterations which are capable of preventing ejaculation. In one both ducts were entirely destroyed, and were surrounded by tubercular matter from the neck of the seminal vesicles to their entrance into the thickness of the pros-

¹ Klebs, Path. Anat., p. 781.

² Virchow's Archiv, Bd. 81, p. 521.

³ Archives Générales, sér. 5, t. vi, pp. 437 and 438.

tate;¹ in one they were converted into small, impermeable fibrous cords, and the man had had a catheter retained in his bladder for a long time for retention of urine; in one the prostate was hypertrophied, and the ducts were narrowed, but pervious to semen on pressing the seminal vesicles; in one both ducts were strictured, and the orifice of the right was completely obliterated, the prostate was enlarged and indurated, and the verumontanum was hard and of the size of a big pea; and, in a fifth case, the orifices of the canals were strictured, but pressure on the seminal vesicles showed that they were open. Ample observation has, moreover, demonstrated not only that the extension of gonorrhœal inflammation to the prostate obstructs its ducts through inspissation of the catarrhal secretion of its glands, and frequently brings about adhesion of the orifices of the ejaculatory ducts,² but that the latter may be occluded by the secondary contraction or by the cicatrices which result from abscess.

Cicatricial occlusion of the ducts from deeply seated abscess has been observed by Kocher³ and Ultzmann;⁴ and the following case from my own practice demonstrates that the inability to ejaculate was due to suppuration of the prostate and obliteration of the ejaculatory ducts:

CASE XXV. A single gentleman, fifty years of age, contracted gonorrhœa thirty years before he consulted me, and two years ago suffered with symptoms of prostatic obstruction, which were followed by suppuration of the gland, and spontaneous evacuation of the abscess. Since that time sexual congress has been followed by a somewhat painful sense of fulness in the region of the prostate

¹ Ultzmann describes a similar case in a living subject. *Loc. cit.*, p. 7.

² Compare with Kraus, *Med. Times and Gaz.*, 1871, vol. i. p. 272.

³ Pitha und Billroth's *Hdbch.*, Bd. iii. Abth. 2, Lief. 7, p. 433.

⁴ *Loc. cit.*, p. 6.

and the anus, and the act is not finished with an ejaculation of semen.

On exploration of the urethra I detected a stricture, calibre 21, at the bulbomembranous junction, along with marked tenderness of its prostatic portion and the neck of the bladder. The finger inserted into the rectum revealed decided diminution in the volume of the prostate.

Injury of the canals in bilateral lithotomy, or even in the lateral operation during the extraction of the calculus, is liable to terminate in aspermatism. I have myself witnessed sterility from this cause in two examples, and Teevan has recorded four cases.¹

La Peyronie² describes the case of a man, the father of three children, who, in consequence of a neglected gonorrhœa, lost the power to ejaculate, although semen oozed away shortly after coition. On post-mortem examination a cicatrix was discovered on the summit of the verumontanum, which had so changed the direction of the orifices of the ejaculatory ducts that they looked backwards toward the bladder. Demeaux³ found in a man, twenty-three years of age, after an abscess of the perineum from a fall, that the urine passed after an aspermous coition contained normal spermatozoa; and, as the urethra was not strictured, but the perineum was diminished in size, and the prostate was drawn down lower than usual, he properly inferred that the ejaculatory ducts had been displaced.

4. Aspermatism may arise, as Reliquet⁴ first pointed out, from *obstruction of the ejaculatory canals by sympexions*, or

¹ Trans. Clin. Soc. London, vol. vii. p. 179.

² Mém. de l'Acad. Roy. de Chir., 1819, t. i. p. 316.

³ Gaz. des Hôpitaux, No. 21, 1860.

⁴ Ibid., 1879, pp. 891 and 915.

concretions composed of spermatozoa, concrete mucus, epithelial cells, and refracting granules, and formed in the seminal vesicles. In the three cases narrated by Reliquet, only one duct was involved, and he ascribes the loss of power to ejaculate to the compression exerted upon the pervious duct by the distended one, and to the arrest of the contraction of the former through the pain experienced at the commencement of the expulsive act. In one example the finger in the rectum detected a bosselation of the right lobe of the prostate, near its middle, and showed the boss to be continuous with the corresponding seminal vesicles ; and in a second case, a small tumor, due to retention of the semen, was discovered at the site of the ducts. Bergh,¹ of Copenhagen, met with a similar condition in a man twenty-nine years of age ; but the case differed from the cases of Reliquet in that the nonejaculation was of an intermittent character. The patient finished his first connection in the usual manner, but afterwards there was merely a sensation of distention ; although, on two occasions during sleep, after dinner, there was an abundant discharge of semen. Bergh advised coition with a condom, with a view to examine the fluid, if any should be evacuated. During the act, the man felt as if something had torn, and there was a seminal discharge, which was rich in spermatozoa and symplexions. Subsequently there was sometimes an emission, and at other times none. In an instance recorded by De Blégny,² the ducts were occluded with hard, spherical concretions as large as peas ; and the verumontanum was indurated, and of the volume of a small nut. The patient, a widower, sixty years of age, and the father of several

¹ Schmidt's *Jahrbücher*, 1879, Bd. clxxxi. p. 36.

² Civiale, *Traité Prat. sur les Maladies des Organes Génito-Urinaires*, t. ii. p. 234.

children, contracted a second marriage, but was unable to ejaculate. In this connection, it may be stated that Beckmann¹ discovered a concretion as large as a cherry in the ejaculatory duct of an old man, the organic portion of which was composed of spermatozoa, and the inorganic portion principally of phosphate and carbonate of lime. The possibility of the formation of so large a concretion, and of its effecting closure of the opposite duct, should be remembered in framing a diagnosis.

e. The fourth division of organic aspermatism includes those cases in which the semen is discharged into the urethra, but its escape is prevented by some obstacle anterior to the prostate gland. If the impediment to its evacuation is seated in the posterior portion of the urethra, the greater part will usually flow back into the bladder, and minute examination of the urine passed after coition will disclose spermatozoa. When the obstacle, on the other hand, is situated at the external orifice, the semen will dribble away with the subsidence of the erection.

The most common cause of retention of the seminal fluid is *stricture of the urethra*, to which attention was first called by Petit;² and it is not difficult to conceive how an opening, which, in the flaccid condition of the penis, admits of the passage of urine, may, during erection, when the normal calibre of the urethra is naturally diminished, become so narrowed through spasm that the semen is confined in the canal between the coarctation in front and the turgid *caput gallinaginis* behind, so that its escape, either forwards or backwards, is prevented until the penis becomes

¹ Virchow's Archiv, Bd. xv. p. 540.

² Mém. de l'Acad. Roy. de Chir., 1819, t. i. p. 323.

flaccid. At page 99, I have narrated the case of a man in whom the stricture admitted a No. 14 bulbous explorer, and in whom the parts behind the coarctation were very sensitive; and I have also met with four additional examples in which the contractions were not so small, and of which the following are good illustrations:

CASE XXVI. A gentleman, twenty-eight years of age, had masturbated excessively from his fourteenth to his twenty-second year, and a few months subsequently, on his first sexual intercourse, discovered that, although the act was completed with the usual sensation and painful spasmodic ejaculatory movements, there was no escape of semen until the erection subsided, when a few drops could be pressed out of the urethra. Examination of the urine passed after copulation disclosed abundant spermatozoa; and a stricture, calibre 22, was discovered at one-third of an inch behind the meatus; and a second, calibre 18, was found at five inches and three-quarters from the external orifice. The prostatic urethra was extremely sensitive, and he suffered from prostatic discharges at stool.

CASE XXVII. A merchant, thirty-eight years of age, who had masturbated to some extent when a youth, and who had always indulged excessively in venery, contracted gonorrhœa fifteen years before I saw him, in 1885. During the past eight years, coition was not terminated with an ejaculation, but the semen dribbled away with the subsidence of the erection. There were marked signs of myelasthenia, and strictures, calibre 27, were detected just behind the meatus, and at two inches and a half and five inches from the orifice.

In these cases, the fault is, in my opinion, to be ascribed less to the organic contraction than to the spasm of the muscular walls of the urethra beneath the sensitive mucous membrane, through which the opening is temporarily

occluded. Hence, such cases are analogous to those of stricture in which exposure to cold and wet, or acrid conditions of the urine react on the inflamed mucous membrane, and produce retention of urine from spasmodic contraction of the muscular fibres of the urethra; and it would probably be more correct to describe them as instances of retention of semen from spasm. Since the stricture maintains the inflammation upon which the spasm depends, it is, however, needless to remove the cases from this category.

Other examples of aspermatism from stricture are recorded by Curschmann,¹ Acton,² and Blackwood.³ The case of Hirtz⁴ terminated by a spontaneous cure during coition, which was attended by violent pain, and followed by severe hemorrhage. The man had had repeated attacks of gonorrhœa, but never ejaculated, and spermatozoa were detected in the urine. After the removal of the obstacle, the nature of which is not clear, his wife gave birth to a child.

The second impediment to the spasmodic, forcible discharge of the semen is a tight *phimosis*, of which the following is an illustration:

CASE XXVIII. A farmer, thirty-six years of age, and married for fifteen years, consulted me in April, 1880, on account of inability to procreate children. The preputial orifice, which would only admit a small probe, was seated upon the back of the head of the penis, so that the meatus was completely hidden by the integuments. He informed me not only that the urine, but that the semen, when the penis became flaccid, converted the prepuce into a sac, and that their egress had to be facilitated by manipulation.

¹ Loc. cit., p. 904.

² Op. cit., 4th Amer. ed., p. 224.

³ Proceedings of the Phila. Co. Med. Soc., vol. i. p. 4.

⁴ Gazette de Strasbourg, No. 5, 1861.

In a similar instance, Blackwood¹ circumcised the patient and relieved his trouble. In the case of Amussat,² after a barren marriage of five years' duration, the removal of a very tight foreskin was crowned with success; and Bergh,³ in the case of a man twenty-one years of age, effected a cure in three weeks by circumcision.

The third obstacle to the proper ejaculation of the urine is *induration of the corpora cavernosa*, to which attention was first directed a century and a quarter ago by La Peyronie.⁴ As this lesion is fully considered on page 70, it need not detain us in this connection.

B.—ATONIC ASPERMATISM.

In aspermatism from atony or loss of contractility of the muscles of the seminal vesicles, ejaculatory ducts, prostate, and urethra, although there is no obstacle to the ejaculation or escape of the seminal fluid, there is never an emission during intercourse or when the patient is awake; but nocturnal pollutions under the influence of lascivious dreams are not infrequent, and are accompanied with the usual pleasurable feelings. Hence the sexual act is never completed, and the subject has to abandon his efforts merely from a sense of exhaustion. In organic aspermatism, on the other hand, except when it depends upon congenital lesions, coition is finished with a discharge which is prevented from escaping; or if the ejaculatory ducts are closed or obstructed, the convulsive movements are experienced with the ordinary sensations.

¹ Loc. cit., p. 5.

² Virchow-Hirsch's Jahresbericht, 1866, Bd. ii. p. 619.

³ Loc. cit., p. 37.

⁴ Mém. de l'Acad. Roy. de Chir., 1761, vol. i. p. 428.

Roubaud¹ attributes this form of aspermatism, which is termed idiopathic by Bergh,² paradoxical by Rheinstaedter,³ and relative by other observers, to spasmodic contraction of the ejaculatory ducts. This opinion cannot be entertained, as the relaxation of the spasm should be followed by the escape of semen, which never happens. Schulz,⁴ Ultzmann, Rosenthal, Kocher, and other observers explain it by the absence of excitability in the lumbar reflex ejaculatory centre during coition, a view in which I entirely concur. In many examples, the general symptoms denote neurasthenia, or the depressed form of spinal irritation, which is presumed to be due to exhaustion of the lumbar division of the spinal cord; and from the fact that the affection is most frequently met with in men who have been addicted to masturbation or venereal excesses, or who have suffered from repeated attacks of gonorrhœa, a class of subjects in whom, as I have shown in the chapter on Impotence, there are, as a rule, inflammation and hyperæsthesia of the prostatic portion of the urethra, I believe that, with few exceptions, exploration with a sound or bulbous explorer will disclose lesions which maintain, and are probably the cause of, the abolished excitability of the reflex ejaculatory centre. In the majority of the cases of aspermatism, other than of the organic variety, I find that the urethra was not examined, and that hyperesthesia was discovered in seven out of nine cases in which an instrument was passed. Hence, exploration of the canal should never be omitted, since upon its condition will depend the employment of the proper measures for the relief of the trouble.

¹ Op. cit., t. i. p. 248.

² Loc. cit., p. 37.

³ Deutsche med. Wochenschrift, 1879, No. 26, p. 336.

⁴ Ibid., 1862, pp. 769 and 787.

These statements are corroborated by the following cases from my private practice :

CASE XXIX. A merchant, twenty-six years of age, had masturbated from his thirteenth to his twentieth year, and erections were provoked by merely looking at a woman, and by other slight causes. At the age of twenty he had his first connection, but failed to ejaculate; and repeated subsequent efforts were attended with the same result. His erections were normal, and he had a nocturnal emission, with the usual sensations, about once every two weeks. The entire urethra was hyperæsthetic, and the prostatic portion excessively so; and there was a stricture, calibre 24, at six inches from the meatus.

CASE XXX. A clerk, thirty years of age, and married for two years, never had an ejaculation during coition, although he prolonged the act until fatigue required him to desist, and he states that ejaculation failed to occur during masturbation, which he practised up to the age of fifteen. He had, however, a nocturnal emission, which was attended with a pleasurable sensation, about once a week. He suffered from pain in the back, a feeling of soreness over the vertex, and palpitation of the heart; was easily fatigued, and his sleep was unrefreshing. The meatus was contracted, and the entire urethra was very sensitive upon exploration. The meatus was laid open on the 10th of June, steel bougies were passed at stated intervals, their size being gradually increased, and bromide of potassium was exhibited internally. On the 27th of August, sexual intercourse was completed with an emission; the symptoms of neurasthenia had disappeared in another month; and from this time he had no further difficulty in intercourse.

C.—ANÆSTHETIC ASPERMATISM.

The first link in the chain of the phenomena concerned in the act of ejaculation is the conduction of the sensory

impressions excited by the friction of the penis against the walls of the vagina to the lumbar division of the spinal cord. If the sensory nerves fail to respond to the ordinary stimulus, reflex contraction of the ejaculatory muscles is prevented, and emission is rendered impossible. This variety of aspermatism, which may be termed anæsthetic, is not common, but the subjoined illustrations demonstrate the possibility of its occurrence.

As the result of concussion of the spine, a soldier was affected with insensibility of the prepuce, of the gland and skin of the penis, and of the scrotum to such a degree that pinching and pricking with pins were not perceived by him. Abundant nocturnal pollutions occurred at long intervals ; but he was unable to ejaculate on coition or masturbation, the latter of which he resorted to with the vain hope of relieving priapism, from which he often suffered, and which constituted an obstacle to the discharge of the urine.¹ A gentleman, aged twenty-eight years, with congenital absence of the prepuce, was unable to complete sexual congress with an emission, although he had an occasional nocturnal pollution. Concluding that the trouble arose from a want of excitability in the nerves of the gland of the penis, Curling² applied the acetum cantharidis, which left the part in a very sensitive condition ; and the man subsequently married, and seldom failed to finish intercourse in the normal manner.

In the second case, under the charge of the same observer,³ a gentleman, forty-four years of age, was unable to ejaculate on account of insensibility of the gland and skin of the penis. Nearly the entire back of the organ was

¹ Lallemand, *op. cit.*, 3d Amer. ed., p. 211.

² *Op. cit.*, 4th ed., p. 483.

³ *Ibid.*, p. 485.

covered by a large, indurated scar, and the prepuce had disappeared, the lesions having been due to syphilis.

In a third case, under the charge of Curling,¹ the distension of the glans and the irritability of its sensitive nerves were prevented by occlusion of the meshes of the corpus spongiosum by inflammatory deposits, through which the glans did not enter into perfect erection.

Nonemission may also be due to obtunded sensibility of the prostatic portion of the urethra, which Van Buren and Keyes² regard as being the seat of pleasure in the act of copulation. They record a case in which this condition was found in a man, thirty-six years of age, who had never experienced an ejaculation during his nine years of married life, although he had had nocturnal emissions.

D.—PSYCHICAL ASPERMATISM.

That the reflex movements emanating from the lumbar genital centre are amenable to the will is illustrated by the fact that many men, to avoid impregnation, are able to retard an emission until the penis is withdrawn from the vagina ; and the restraining action of the cerebrum is also proved by two curious cases of atonic aspermatism, recorded by Roubaud³ and Hicquet,⁴ in which the ejaculation instantly ceased if the patient awakened during a nocturnal pollution. Other men, through disgust, suspicion of infidelity, or loss of passion, are unable to complete sexual congress with their wives, although they succeed perfectly with other

¹ Op. cit., 4th ed., p. 460.

² Genito-Urinary Diseases, with Syphilis, p. 466.

³ Op. cit., p. 244.

⁴ Bull. de l'Acad. Roy. de Méd. de Belgique, sér. 2, t. iv. p. 482.

women. Hence, aspermatism from the inhibitory action of the brain over the centre for ejaculation is temporary or relative; emission being possible under some circumstances and impossible under others; and it is altogether independent of organic lesions.

DIAGNOSIS.—The determination of the particular form of aspermatism is based upon the history of the case, upon the thorough exploration of the external and internal organs of generation, upon the examination of the urine, and upon the conclusions drawn from the effects of the remedies employed for its relief. As these points have already been more or less fully considered, little need be added in regard to them.

The existence of congenital absence or obliteration of the ejaculatory ducts is rendered almost certain if there has never been an emission under any circumstances whatsoever, if the urine is devoid of spermatozoa, and if there is no history of antecedent inflammation or injury. When, on the other hand, the urine passed after coition contains spermatozoa, and the other negative signs are present, congenital deviation of the ducts with discharge of the semen into the bladder is a perfectly fair inference.

A history of deeply seated abscess of the perineum or lithotomy points to cicatricial occlusion of the ducts; while the detection of spermatozoa in the urine after sexual congress in persons who have suffered from perineal abscess or from neglected gonorrhœa shows that there is acquired deviation of those canals. Obstruction of the ejaculatory ducts by symplexions gives rise to the affection termed spermatic colic by Reliquet. There is always reflex contraction or loss of dilatability of the bladder. This makes itself known by difficult and very frequent urination, and

by the expulsion of the last drops, which are liable to be bloody, being attended with lancinating pains which extend from the anus to the extremity of the penis. The subjects refrain from intercourse because excessive suffering is excited at the moment when ejaculation should occur; or is even induced by venereal desires or by commencing erection. Exploration through the rectum discloses a small, circumscribed tumor in the region of the prostate; and if the latter be compressed between the finger and a sound in the urethra, either the swelling will at once disappear, and the instrument be covered with semisoft, grayish masses looking like bits of vermicelli or grains of boiled rice, or there will be an abundant discharge of semen, which contains symplexions, at the ejaculation during the first coition after the manipulations; or spermatozoa and seminal concretions will be passed at the succeeding act of micturition.

In aspermatism from stricture of the urethra the patient has nocturnal emissions, the usual convulsive movements of ejaculation and pleasurable sensations are felt during coition, and the urine passed after sexual congress contains spermatozoa. The diagnosis is confirmed by the use of the exploratory bougie, to which sufficient reference is made on page 37. When the trouble arises from a tight prepuce, its cause is obvious.

Atonic aspermatism is always to be suspected in persons who have indulged excessively in venery or in masturbation, or who have had gonorrhœa; in those who suffer from the ordinary symptoms of neurasthenia; and in subjects who ejaculate under the influence of a lascivious dream. The diagnosis is confirmed by the existence of hyperæsthesia of the prostatic urethra.

The anæsthetic form of the affection is denoted by the

loss of sensibility of the gland and skin of the prepuce and penis; and nonejaculation from emotional causes is readily determined by the history of the case.

PROGNOSIS.—Aspermatism from spermatic fistulae and congenital or acquired absence, obliteration, or deviation of the ejaculatory ducts is permanent, and nothing is to be expected from treatment. When the ducts are obstructed by sympexions, or when the affection is referable to stricture of the urethra or phimosis, a cure may be looked for. The prognosis is good when the failure to ejaculate depends upon hyperæsthesia of the prostatic portion of the urethra; but atonic aspermatism without morbid sensibility of that division of the urethra calls for a certain amount of reserve in the expression of an opinion; and the same statement holds good for the anæsthetic variety. The psychical form is temporary or relative, and capable of correction.

TREATMENT.—When the ejaculatory ducts are obstructed, the plan proposed and successfully practised by Reliquet in two cases is to be recommended. A sound having been introduced into the bladder, the circumscribed swelling is emptied by counterpressure with the finger in the rectum. When the trouble depends upon stricture of the urethra, dilatation or internal division should be resorted to; and if it arises from phimosis, circumcision will afford prompt relief.

When the atonic variety of aspermatism is combined with inflammation and hyperæsthesia of the prostatic urethra, the measures should be directed to subduing the latter before attempts are made to restore the contractility of the muscles concerned in the act of ejaculation. Hence, the treatment is essentially the same as that described in pages

41-52, and its good effects are well illustrated by Case XXX.

If, on the other hand, the prostatic portion of the urethra is insensitive, a tonic course should be at once instituted. The best prospects for relief are held out by quinine, iron, and strychnia, internally, cold sitz-baths,¹ and galvanism,² the negative catheter pole being in contact with the verumontanum, while the anode is placed over the lumbar portion of the spine or the perineum. Instead of continuous, induced currents³ may be employed, as in the instance of Hicquet,⁴ in which a cure was effected in eight days after the failure of the remedies advised by Roubaud.⁵ In the case recorded by the latter author, under the idea that the affection was due to spasm of the ejaculatory ducts, normal coition was restored, after a preliminary venesection, by a pill composed of assafoetida, castoreum, extract of opium, and extract of hemlock, and by sprinkling the vesicated surface of the perineum with morphia. In another example of atonic aspermatism Hicquet⁶ succeeded in curing his patient in ten days by the internal exhibition of the alcoholic extract of nux vomica, gradually increased from two to six centigrammes a day.

In anæsthetic aspermatism, the passage of the faradic brush over the penis, the anode being applied to the spine, is indicated, with the view to restore the obtunded or abolished sensibility of the nerves. In the event of the failure of this measure, the gland of the penis may be blistered with some prospect of success, as in an example from the practice of Curling.⁷

¹ Consult page 53.

² Consult page 54.

³ Consult page 55.

⁴ Loc. cit., p. 482.

⁵ Op. cit., p. 244.

⁶ Loc. cit., p. 492.

⁷ Op. cit., p. 483.

Aspermatism from disturbance of the brain, such as loss of affection for or repugnance to a certain woman, is hopeless, unless the subject undergoes a change of sentiment. Being entirely emotional, nothing can be done for him in the way of medication.

SECT. IV. MISEMISSION.

In the preceding forms of sterility, no semen whatsoever, or unproductive semen, is secreted; or there is failure to ejaculate. In the variety under consideration, fertile semen is emitted, but it is not deposited in the upper portion of the vagina; so that it differs from aspermatism from mechanical obstruction in that the secretion has an outlet, and does not regurgitate into the bladder, or slowly ooze from the urethra when the erection has subsided. Hence, the term misemission is employed in the sense that the ejaculation has a faulty direction.

The most common causes of misemission are *vices of conformation of the urethra*. Thus, hypospadias may destroy the capacity for procreation, even when it is of light grade, as in two cases recorded by Kirsch;¹ but the deformity does not usually involve sterility, unless the opening of the urethra is situated at the penoscrotal junction or in the perineum, and not even then, as, in exceptional instances,² the posterior wall of the vagina may act by replacing the deficient inferior wall of the urethra, thereby permitting

¹ Wiener med. Presse, 1881, p. 214.

² Morgagni, Anat. Path., 1838, t. iii. p. 73; and Casper, op. cit., p. 251.

the ejaculated semen to reach its destination. The same statements are applicable to epispadias, and to fistulous openings in the urethra, the result of stricture or injury. In all of these conditions the prognosis is unfavorable, and the treatment is most unsatisfactory. If a plastic operation be practised, the precaution should be taken to make a perineal outlet for the urine.

Malposition of the meatus, through which the semen is voided backward and downward, or to one side, is an occasional cause of misemission, and is usually due to congenital or acquired shortening of the frenum. Guerlain¹ has reported the case of a man, thirty-five years of age, in which the penis was almost completely rotated from left to right, so that the dorsal surface reposed on the scrotum, and the meatus was situated on the side of, and about five-tenths of an inch behind, the extremity of the gland ; and Guillon² met with a case in which the meatus opened on the side of the gland, and in which the stream of urine described almost a right angle with the penis. When the trouble arises from shortening of the frenum, the proper remedy is division of that structure. In the case of Guillon, excision of the pouch-like walls of the meatus resulted in a cure.

¹ Bull. de la Soc. Anat., sér. 2, t. iv. p. 87.

² Gaz. Méd. de Paris, 1843, p. 160.

CHAPTER III.

SPERMATORRHŒA.

IN its restricted sense spermatorrhœa means a constant escape of seminal fluid without erection or pleasurable sensation; but the term, in a sense which has prolonged sanction, is employed in the following description of the affection to designate all the varieties of involuntary seminal losses which occur beyond the limits of health, and it is, therefore, synonymous with seminal incontinence. Under no circumstances should the affection be regarded merely as a "functional disorder of the testes," since, in the great majority of instances, it is primarily dependent upon and symptomatic of weakness or exhaustion along with increased impressibility, mobility, or excitability of the genito-spinal centre, phenomena usually induced and perpetuated by hyperæsthesia of the nerves which supply the prostatic portion of the urethra.

CLASSIFICATION.—Seminal incontinence includes three conditions which may exist separately, or pass into one another, or be combined in the advanced stage of the disorder. These conditions constitute the following varieties of the disease:

First. Nocturnal emissions or pollutions, which occur during sleep, and are generally attended with an erection, pleasurable sensation, and an erotic dream.

Second. Diurnal pollutions, which take place when the

subject is awake, are excited by slight mechanical or psychical causes, and are usually accompanied with incomplete erection and diminished sensation.

Third. Spermatorrhœa in the strict acceptation of the term, or a slight continual flow of semen from the urethra, without erection or specific sensation, without impure thoughts, or during urination or defecation. To avoid confusion, I will employ the term spermorrhagia to indicate this phase of the affection.

1. NOCTURNAL POLLUTIONS.—Involuntary nocturnal seminal discharges constitute the variety of the affection in regard to which physicians are usually consulted, and about which not a little ignorance prevails, as they are natural to all men, and are most common after the epoch of puberty, when the mind is more or less taken up with sexual matters. Their frequency varies in accordance with a great many circumstances, such as age, climate, habits, constitution, temperament, diet, and predisposition, it having been observed that they are very liable to occur in young men who were affected in their childhood with nocturnal incontinence of urine. Their frequency also varies greatly in the same individual; but it is impossible to determine the healthy standard merely by the intervals of their repetition, since what may be normal in one person may be morbid in another. In a general way, I should say that in single men who lead a continent life and possess a sound nervous system, emissions at intervals of two weeks are indicative of excellent health. In such persons they are merely reflex signs of fulness or distention of the seminal passages, and constitute an inconvenience of ungratified sexual instinct. Even if they occur several times a week, provided they are not followed by symptoms of nervous disorder, they are

not at all inconsistent with temporary good health, as is well exemplified by the following striking case, under my care in 1882, and which I narrate in the patient's own language :

CASE XXXI. "I am a druggist, single, and twenty-seven years of age. I commenced masturbating when I was sixteen, and continued the practice daily until I was twenty-one, when I quit it for several months, and the nocturnal emissions began. From my twenty-first to my twenty-sixth year, I masturbated three or four times a month, and would stop it for a few weeks, and again resume it, until one year ago, when I ceased it altogether. For the past six years I have had from three to four emissions a week, at times having two during one night. They were always accompanied by a voluptuous dream. I have two or three erections daily, but no emission during the day, and, for the past six months, I have noticed that a few drops of fluid would ooze out after each stool, especially if I happened to strain. I have never had connection with a female. I do not feel badly after having an emission, but get up ready for my work. I have a good appetite, sleep well, am strong, and my bowels are regular." I may add that this patient had a sensitive prostatic urethra, and that I circumcised him, and divided a stricture seated just behind the meatus.

Cases like the preceding are exceptional, but, as I have already intimated, it is a question of individual tolerance and constitution, or vulnerability of the nervous system. Hence persons who consult the physician in regard to involuntary nocturnal losses should be informed that they are natural ; and they should be impressed with the fact that the emissions need not awaken concern unless they are accompanied with unpleasant effects, or they have occurred frequently for several years, as in the latter condition it will only require a little longer time for general symptoms to manifest themselves.

Nocturnal pollutions are abnormal or pathological when they are followed by headache, backache, slight enfeeblement of the functional powers of the brain, mental depression, and bodily or mental languor or lassitude; when they occur in married or single men who indulge in, regular intercourse; when they take place without erections or dreams, and the patient is only made aware of them by the stains on his linen; when they attend or follow acute or chronic diseases; when they are associated with diurnal pollutions or spermorrhagia; and when they are complicated by one of the varieties of impotence.

All of the preceding conditions are very liable to be attended with one of the varieties of impotence, which, indeed, may be the only indication that the emissions are pathological or one of the effects of impairment of the functions of the lumbar cord. In men of apparently the same amount of vigor and resistance, and in whom the pollutions occur with equal frequency, the associated symptoms of nervous exhaustion vary very much in degree, or they may be entirely absent. Thus, in Case VI., page 29, in which the emissions occurred from one to five times a week, the signs of neurasthenia were pronounced; while in Case XVI., page 39, as in Case XXXI., which was characterized by an excessive number of pollutions, there was not the slightest evidence of spinal weakness. In Case XI., page 33, there were no general symptoms whatsoever; while in Case XIV., page 35, the patient was a hypochondriac. In both, the emissions took place at the same intervals. In the first of the following examples, which illustrate the same point, the man was in robust health; while in the second, although the patient evinced no outward evidence of impaired health, the signs of myelasthenia were

marked. They are selected because they present many points in common.

CASE XXXII. A student of law, aged twenty-one, had masturbated from his eleventh to his eighteenth year, and has suffered from nocturnal emissions for the past three years, on an average, three times a week. For the past five months he has had irritability of the bladder, and feeble erections with premature ejaculations, for which he sought my advice. The lips of the meatus were red and pouting, and I detected a stricture, calibre 13, at five inches and a half from the meatus, along with great sensitiveness from that point as far as the neck of the bladder.

CASE XXXIII. A bookkeeper, twenty-one years of age, has had nocturnal pollutions, which were not always accompanied by voluptuous dreams, three times a week, on an average, for four years ; and he had masturbated from his tenth to his seventeenth year. On the following morning he felt greatly prostrated ; and he constantly suffered from pains in the back, anorectal region, and top of the head, vertigo, muscular weakness of the limbs, and mental lassitude and depression. The prostatic urethra was excessively sensitive, but there was no stricture, and he passed prostatic fluid when the bowels were constipated.

2. DIURNAL POLLUTIONS.—Ejaculation of semen when the patient is awake is always morbid, and indicates a condition of irritable weakness of the genital organs and of the reflex centres which preside over them. In the lesser phase of this variety an emission is due to slight peripheral irritation, provoked by friction of the clothing, crossing of the legs repeated several times, horseback exercise, driving over rough streets, or even shaving, or combing the hair,¹ or shampooing the head;² while in the more aggravated

¹ Townsend, Elements of the Therapeutics, vol. ii. p. 399. London, 1799.

² Flint, Principles and Practice of Medicine, 5th ed., p. 938.

form the ejaculation is induced by psychical irritation, as reading libidinous books, the sight of indecent pictures, lascivious ideas, or simply looking at a female. In the former of these conditions there is a tolerable erection, but the sensation is diminished; in the latter the erection is flabby, or the penis is flaccid, and there is little or no pleasure.

In five cases under my care the diurnal pollutions were due, respectively, to thinking of women in one, to thinking of women and looking at indecent pictures in one, to driving, bathing, and impure thoughts in one, to horseback exercise and driving in one, and in one, the history of which is subjoined, to various causes. All of the subjects were masturbators who never suffered from gonorrhœa; all were affected with neurasthenia; and all had hyperæsthesia of the urethra and from one to three strictures. Of these five cases, the following is noteworthy:

CASE XXXIV. A farmer, forty-five years of age, masturbated daily from his twelfth to his twentieth year, and less frequently to the age of twenty-four. On ceasing the habit, he began to be troubled with nocturnal emissions, which, up to the date of his marriage, six years before he consulted me, averaged two a week, but had decreased in frequency since that time. The erections were always weak, and ejaculation premature, occurring frequently before intromission. Of late years the penis has been so sensitive that the mere friction of the clothing in walking was frequently sufficient to cause an erection with simultaneous emission. He suffered from pain and a feeling of weight in the perineum and back, muscular weakness of the limbs, vertigo, disturbed sleep, constipation, and an anxious frame of mind in regard to his condition, which had been aggravated by his wife, an amorous woman, who constantly toyed with his genital organs. An elongated prepuce had been removed, and the meatus enlarged eight years before I saw him.

On examination, I discovered a small and rigid penis, which was

so sensitive to the touch that the slightest manipulation preparatory to exploring the urethra was followed by an erection and an emission mixed with blood, which contained only a few spermatozoa. A stricture, calibre 20, was detected two inches from the meatus, and the urethra was so excessively tender that the bougie, on reaching its prostatic portion, produced lividity of the face and an epileptoid convulsion. Emissions subsequently took place on the passage of the bougie; but, at the end of three months, under appropriate treatment and division of the stricture, they had disappeared.

3. SPERMORRHAGIA.—In the third variety of the affection, semen is constantly discharged without the occurrence of the orgasm; and its passive loss, which is associated with dilatation of the orifices of the ejaculatory ducts from atony of their muscular fibres, may be the only sign of seminal incontinence. The existence of this condition is denied by some writers, but its occurrence cannot be questioned; and Case XXII., page 94, in which the fluid brought away by the bulbous explorer contained motionless spermatozoa, and in which the discharge was increased by straining at stool, and by toying with women without gratifying the passions, affords a capital illustration of it.

Under this category should be included the condition in which the semen is unconsciously discharged in the acts of urination and defecation; and it likewise depends upon irritable weakness of the seminal vesicles and dilatation with atony of the ejaculatory ducts. While in the majority of instances the fluid pressed out of the urethra in these ways is derived from the prostate, the microscope discloses that it is spermatic in a certain proportion of cases. Some authors are sceptical in regard to the passage of semen with the urine; but its occurrence is attested, apart from older

observations, by five case recorded by Beard,¹ by two under the care of Fürbringer,² by two reported by Black,³ by Case X., at page 32, and by the following additional instances from my private notes :

CASE XXXV. A clerk, twenty-eight years of age, had masturbated freely for ten years, and for the past two years had difficulty in acquiring an erection, although he still has sexual desire. He is greatly depressed, easily fatigued, incapable of prolonged mental exertion, and has a woe-begone expression. There is a constant slight discharge of a clear, viscous fluid which causes the lips of the meatus to adhere during the night, and he is convinced that the urine contained semen. I found, on examination, that the urine was highly acid, and contained a few motionless spermatozoa, pus corpuscles, and crystals of oxalate of lime. Strictures, calibre 22, were detected at one-eighth of an inch and five inches from the meatus, and the prostatic urethra was highly sensitive.

CASE XXXVI. A physician, twenty-four years of age, who had masturbated from his eighth to his sixteenth year, and who had never contracted gonorrhœa, consulted me concerning a discharge which for one year had escaped from the urethra at stool and at the end of micturition. Minute examination of the fluid revealed abundant normal spermatozoa, and strictures, calibre 26, were found at two inches and a half and five inches from the meatus, and the prostatic urethra was extremely sensitive. He had lost flesh and strength, was incapacitated for mental exertion, was depressed and apathetic, and suffered from pain in the back, tinnitus, and constant twitching of the muscles. Nocturnal emissions occurred, on an average, at intervals of eight days.

In two of my cases dead spermatozoa were detected in the urine, thereby constituting a condition which may be

¹ Medical Record, 1879, pp. 73, 74, and 558; and 1880, pp. 507 and 508.

² Volkmann's Vorträge, No. 207, 1881, pp. 1835 and 1856.

³ London Lancet, 1882, vol. ii. pp. 618 and 655.

called azoospermorrhagia, or the passive loss of infertile semen, while in the third case living elements were numerous in the fluid discharged during defecation and micturition. In these examples the orifices of the ejaculatory ducts were open and atonic from the localization in the prostatic urethra of inflammation induced by masturbation, and the subjects were neurasthenic.

Fürbringer¹ has recently called attention to the fact that spermorrhagia, with precisely similar local lesions, is frequently induced by chronic gonorrhœa, the semen being expressed from the seminal vesicles by lifting weights, coughing, and sneezing, as well as by straining at stool or in passing water, or by any other cause which brings about increased intraabdominal pressure. Excluding all cases in which semen might be accidentally mixed with the urine, Fürbringer has found spermatozoa, sometimes in large numbers, in the urine of twenty-five out of one hundred and forty cases of chronic gonorrhœa. This "latent" or false spermorrhagia has nothing in common with neurasthenic spermorrhagia, save the local lesions; it is not complicated by impotence or sterility, nor is it associated with disorders of the general health.

CLINICAL HISTORY.—Any one of the three forms of spermatorrhœa may exist separately, but they gradually pass into each other, and are variously intermixed in the advanced grade of the affection. When the case goes on from bad to worse, it usually pursues the following course, in consequence of the increase in the mobility of the ejaculatory centre, and of the advancing exhaustion of the entire nervous system. At first, abnormal frequency of the noc-

¹ Deutsche medicinische Wochenschrift, No. 42, 1886, p. 730.

turnal pollutions is associated with backache, headache, a sense of painful muscular fatigue, and slight paresis of the brain, as indicated by incapacity for any sustained mental effort. With the increase in the number of the emissions, the patient discovers that erections are becoming insufficient, and that ejaculation on coition is precipitate; and the general symptoms are aggravated by the addition of dulness of perception, impairment of memory, vertigo, mental dejection, weakness of vision, trembling of the limbs, palpitation of the heart, shortness of breath, a sense of oppression in the chest, flatulence, constipation, and other dyspeptic signs. Diurnal pollutions from slight mechanical or psychical causes are now superadded, and the emissions occur with little or no erection or pleasurable sensation, or even when the penis is flaccid; and intercourse is impracticable, either from flabby erection or from anticipating ejaculation. The general symptoms also are more serious. The patient is liable to brood over his assumed lost virility, and the mental depression verges upon or passes into a condition of sexual hypochondrism. His gait is unsteady; he is subject to wandering neuralgic and rheumatoid pains; the hands and feet are habitually cold; he passes restless or sleepless nights; shuns society; fears to look one in the face; is utterly incapacitated for mental or physical exertion; and thinks of nothing but his sexual organs. With the still further increase of the irritable weakness of the genitalia and nervous system, the semen constantly oozes out of the urethra, and its discharge is augmented during defecation and micturition. The man is converted into a confirmed hypochondriac, and if he comes from an insane family, he lapses into insanity, not, however, because of the seminal losses, but because of the disturbances of the nervous system which lead to the emissions. A person

who has inherited a tendency to insanity, epilepsy, ataxia, or other nervous disorders, may, therefore, bring on those affections, the first link in the chain being functional troubles of the nervous centres, which gradually pass into organic disease, and are caused, according to my observations, in rather more than nine-tenths of all cases, by masturbation.

Of the general symptoms which are associated with abnormal seminal losses, and which indicate more or less complete exhaustion of the brain and spinal cord, an analysis of one hundred and seventy-five cases, of which I have notes, indicates the following interesting facts in regard to their importance and relative frequency. There was an anxious or depressed condition of the mind in seventy-two; constant dwelling upon sexual matters in seventy-two; hypochondrism in fourteen; mental dejection after intercourse or emission in sixty; impairment of memory in fifty-five; incapacity for prolonged mental exertion in sixty-eight; headache in sixty-nine; vertigo in thirty; broken sleep in fifteen; insomnia in six; drowsiness in eleven; irascibility in two; asthenopia, or muscæ volitantes, in thirty-one; noises in the ears in twenty-six; muscular weakness of the limbs and fatigue in one hundred and eighteen; trembling of the limbs in ten; temporary reflex paraplegia in one; pain in the back in ninety-five; oppressed breathing in seven; pain in the chest in three; constipation in sixty-one; dyspepsia in forty; palpitation of the heart in twenty-six; subjective sensations of cold in eleven, and of heat in four; loss of flesh in nine; and pallor of the face in fifteen.

It will thus be perceived that constant occupation of the mind with the sexual functions, mental dejection, impairment of the memory, incapacity for mental work, headache, vertigo, muscular weakness of the limbs, pain in the back,

noises in the ears, and irritability of the eyes, constitute the most common of the disturbances of the cerebrospinal axis and of the special senses; while, of the phenomena referable to the circulatory, respiratory, digestive, vaso-motor, and nutritive systems, palpitation of the heart, oppression of breathing, constipation, indigestion, chilliness, a feeling of elevated temperature, pallor, and emaciation, are the most frequent. In six cases the presence of dark spaces under the eyes formed the subject of grave apprehension.

A further analysis of the one hundred and seventy-five cases shows that certain local signs are connected with seminal incontinence. There was feebleness of erection with premature ejaculation in thirty-eight; irritable weakness in twenty-nine; total failure of erection in ten; elongation of the prepuce in thirty-nine; relaxation of the scrotum in nineteen; irritable testis in nine; varicocele in six; hemorrhoids in five; coldness of the genitalia in eight; a feeling of heat in the genitalia in three; painful ejaculation on intercourse in three; bloody ejaculation in one; and irritability of the bladder in eight. In fourteen examinations of the semen furnished by patients suffering from an aggravated form of the malady, I found that fluid to be watery, and that in four the spermatozoa were small, motionless, and variously deformed, and, therefore, incapable of impregnating the ovum. As the changes which the semen undergoes in spinal exhaustion have been so fully considered in the section on azoospermism, they need only be referred to in this connection.

ETIOLOGY.—Spermatorrhœa is not a distinct affection, but one of many symptoms of general and local lesions, or of both combined. In the vast majority of instances it

must be regarded as a motor neurosis, or a functional derangement of the nervous system, which is indicated by increased susceptibility of the brain and cord, or feebleness of their powers of resistance to acts which in healthy persons would not be productive of evil consequences. Like other neuroses, it may be the result of congenital predisposition, when it is liable to be observed in several members of the same family through several generations. Under these circumstances, the subject is of a nervous, excitable, or irritable temperament; and he probably suffered during his infancy from nocturnal incontinence of urine, as was first pointed out by Trousseau,¹ of which the following example is a marked illustration:

CASE XXXVII. A physician, fifty years of age, consulted me, March 14, 1881, on account of nervous exhaustion, seminal losses, and dread of impotence. Up to his tenth year he was troubled with nocturnal enuresis. He was a close student at college; and at the age of eighteen began to have nocturnal emissions, and his mind dwelt constantly on sexual ideas; but he never masturbated. Up to the time he saw me, or for thirty-two years, the emissions varied from one to three a week; but he did not evince any special signs of neurasthenia for several years after their commencement, when he observed that he was constantly drowsy, and that he was very restless, particularly in crowded assemblies and at social entertainments. He soon became easily fatigued, and was incapable of bodily exertion, and his brain was unequal to prolonged work. Three years ago he abandoned the practice of his profession, and during a visit to Europe, in the summer of 1880, he had a mild attack of reflex paraplegia, which followed a sudden rush of blood to the head. He never had sexual intercourse. He has an erection nearly every morning, but the gland of the penis is rather flabby, and he notices that the lips of the meatus are glued together

¹ Op. cit., t. ii. p. 636.

by a slight gleety discharge. The prepuce is somewhat long; there is a stricture, calibre 22, one-third of an inch behind the meatus; the prostatic urethra is highly sensitive; there is a large varicocele of the left side; and there is a tendency to irritability of the bladder.

Among the predisposing causes may be mentioned erotic ideas. When constantly and involuntarily indulged in, even when the patient does not practise natural or unnatural acts, as in the preceding case, they constitute a powerful factor in the production of irritation of the genital organs and of reflex impressibility of the centres which preside over them.

Seminal incontinence is usually acquired, and is due in the great majority of instances to masturbation. Thus of the one hundred and seventy-five cases of which I have a record, in only one was it the result of an inherited predisposition. Of the remaining examples, in one hundred and fifty-three it was traceable to onanism; in seven it arose from gonorrhœa; in eleven it was met with in men who had masturbated, suffered from gonorrhœa, and had indulged their propensities in various ways; in one it was due to toying with women; and in three the cause was obscure. One hundred and fifty-four were single, eighteen were married, and three were widowers. Twenty-two cases occurred before the age of twenty; one hundred and three between twenty and thirty; thirty-six between thirty and forty; and fourteen between forty and fifty-four. All of the married men were given to sexual excesses; and although four stated that they were not addicted to masturbation early in life, I believe that marital sexual excess is generally the natural result of a previously vicious habit. In only one case of this class did the emissions come on

subsequent to marriage. In the remaining seventeen, they were present both before and after marriage. Of the one hundred and fifty-three masturbators, all except twenty-six had one or more strictures; and the remaining twenty-two patients were, with a single exception, affected in the same way. In only eleven cases was decided hyperæsthesia of the urethra absent; so that this condition is rather less frequent in cases of spermatorrhœa than in cases of impotence, in which, as has been pointed out on page 21, it was wanting in twelve cases out of two hundred and sixty.

Under the influence of erotic ideas, masturbation, sexual excesses, or unsatisfied sexual excitement produced by toying with females, exaggerated irritability of the genital organs is induced, and is soon followed by chronic or subacute inflammation and hyperæsthesia of the prostatic portion of the urethra, which culminate, in bad cases, or in those characterized by diurnal pollutions and spermorrhagia, in dilatation and relaxation of the orifices of the ejaculatory ducts. As the natural result of their constant excitability, the nerves distributed to the prostatic urethra are alive to the slightest impressions. This condition induces increased mobility or irritability of the reflex cerebral and spinal genital centres, through which the motor nerves which supply the ejaculatory apparatus are thrown into action, and an emission follows. This, it seems to me, is the rational explanation of seminal incontinence.

Involuntary seminal losses are also met with during convalescence from or during the progress of certain acute and chronic diseases which are characterized by disturbances, or exhaustion, of the nervous system. Thus, it may be

symptomatic of variola or phthisis,¹ typhus,² progressive muscular atrophy and commencing bulbar paralysis,³ of paraplegia,⁴ and of locomotor ataxia,⁵ in the last of which affections Hammond⁶ has recorded an example of eight nocturnal pollutions in a night. Chronic alcoholism also predisposes to their occurrence; and Mitchell⁷ describes a case in which they seemed to be due to the habitual use of opium. I have myself met with a case in which the emissions set in during an attack of typhoid fever; but as the man had a phimosis, and had been a masturbator, I am inclined to believe that his illness served simply to increase a preexisting weak condition of the spinal genital centre. From the great rarity with which nocturnal emissions have been observed in the diseases mentioned above, I have no doubt that urethral lesions were present in the cases here cited.

Of the local causes of spermatorrhœa, by far the most common are hyperæsthesia and chronic inflammation of the prostatic portion of the urethra, which are generally induced by masturbation; and these morbid conditions are just as important in its production as they are in the causation of impotence. In the vast majority of cases they constitute the original source of the trouble, and tend not only to excite reflex emissions, but also to maintain the disorder by keeping the mind occupied with sexual matters. Even in cases in which the affection would seem to depend upon

¹ Curschmann, loc. cit., p. 867.

² Nowatschok, Wiener med. Presse, 1879, p. 1067.

³ Stéphanides, ibid., p. 913.

⁴ Roberts, Canada Med. Record, vol. vii. p. 253.

⁵ Erb, op. cit., pp. 543 and 585; Rousseau, op. cit., p. 510; and Topinard, De l'Ataxie Locomotrice, p. 171.

⁶ Treatise on the Diseases of the Nervous System, 6th ed., p. 593.

⁷ Amer. Med. Monthly, vol. xv. p. 285.

other local lesions, they are almost invariably present, so that associated disorders of the penis, the urethra, or the rectum merely act by intensifying them. In a few cases it is true that the hyperæsthesia is not marked, and that other abnormal states, as a congenital contraction of the meatus, are sufficient to excite reflex contraction of the seminal vesicles; but in these instances it is scarcely possible that local conditions would induce the trouble in persons who were not predisposed to it. Hence, I think that no case should be treated without a preliminary examination of the urethra, which seems to be omitted by physicians in general, and by many surgeons.

Of the local exciting causes phimosis, in the form of redundancy of the prepuce, is probably one of the most common, and acts as a source of reflex irritation by keeping the gland moist, or by retaining the smegma. Not only is the prepuce elongated, but in many cases it will be found to constrict the gland when the penis is erect, a point which should always be looked into, as it has an important bearing upon the treatment. Herpes of the prepuce, which is far less frequently met with than the preceding condition, is another cause; so also is congenital shortness of the frenum, as in a case recorded by Heulard Darcy.¹

Of the conditions which relate to the urethra, the most important are congenital narrowing of the meatus,² which I have seen in sixteen cases, and organic stricture, seated near the orifice, of which I have met with many examples. Zeiss³ has quite recently declared that spasmodic stricture is a cause of very frequent pollutions. In a unique case

¹ Virchow-Breslau's *Jahresbericht*, 1866, Bd. II, p. 102.

² Bégaud, *Canard's Jahresbericht*, 1866, Bd. II, p. 222.

³ *Med. News and J. Dis. of the Uterus*, 1881, p. 42.

recorded by Genuaudet,¹ the removal of a polyp from the prostatic portion of the urethra was followed by the cessation of the nocturnal emissions.

Acute inflammation of the seminal vesicles is attended with frequent and painful, and it may be with bloody, pollutions. In an instance of chronic inflammation of these bodies under my care, the discharge was usually of a yellowish tint from the admixture of pus, and decidedly bloody when the pollutions followed each other in quick succession. In cases of this description the seminal losses are due to hyperæsthesia of the mucous membrane of the vesicles, so that the trouble is analogous to incontinence of urine from morbid sensibility of the lining membrane of the bladder. Liégeois² states that epididymitis is a fruitful source of nocturnal emissions.

Among other exciting causes of spermatorrhœa may be mentioned diseases of the rectum and anus, as piles, ascarides, fissures, pruritus, and painful eruptions; and Perrin³ has recorded a case in which nocturnal pollutions were induced by the cauterization of internal hemorrhoids. As the rectum and anus are supplied by the same nerves as are distributed to the genitalia, it is not surprising that the reflex ejaculatory centre should respond to an impulse transmitted from them. The same statement is true of certain affections of the bladder. Habitual constipation may also excite emissions through the increased intra-abdominal pressure exerted upon the seminal vesicles during the evacuation of hardened feces; but this is observed only when the orifices of the ejaculatory ducts are dilated and paralyzed. The fluid which escapes from

¹ Virchow-Hirsch's *Jahresbericht*, ut supra, p. 163.

² Loc. cit., p. 512.

³ Canstatt's *Jahresbericht*, 1857, p. 301.

the urethra of healthy men, under these circumstances, is not seminal, but it is usually derived from the prostate.

ANATOMICAL CHARACTERS.—The morbid appearances which belong to spermatorrhœa in its early stage are utterly unknown so far as their verification by post-mortem examination is concerned. That the exaltation of the sensibility of the urethra depends upon subacute or chronic inflammation of its mucous membrane, particularly in the region of the verumontanum, is rendered certain by the concomitant local symptoms, by exploration with the endoscope and the sound, aided by the finger in the rectum, and by the results of treatment. In seven aggravated cases, of which two are recorded by Lallemand,¹ one is narrated by Curling,² and four are collated by Kaula,³ there was a stricture in four, injection of the mucous membrane of the deep portion of the urethra in two, dilatation of the orifices of the ejaculatory ducts in six, combined with excoriation in two, ulceration in two, and enlargement of the canals themselves in one, suppuration of the prostate in four, suppuration of the seminal vesicles in three, and chronic inflammation of those bodies in two.

So far as I am aware, there have been no examinations of the nervous centres connected with the genital organs in spermatorrhœa, so that it is impossible to say whether they are the seat of structural lesions. In a case of paraplegia induced by sexual excesses, however, Sir William Gull⁴ was unable to detect the slightest change in the cord. The common view, that the cells which minister to the

¹ Op. cit., Phila., 1858, pp. 37 and 42.

² Op. cit., 4th ed., p. 492.

³ De la Spermatorrhœe, Thèse de Paris, 1846, pp. 167-173.

⁴ Guy's Hosp. Reports, 1858, p. 175.

functions of the cord are completely exhausted is, therefore, probably correct.

DIAGNOSIS.—The only mode of determining whether the fluid which constantly moistens the urethra, is discharged at stool or with the urine, or is brought away by the bulb of the explorer, is seminal in its character, is to examine it under the microscope with a power of about four hundred diameters, with the view of discovering spermatozoa. Should they be found, there need be no doubt as to its true nature ; but it must be remembered that their absence is not an evidence that the case is not one of spermatorrhœa, since, as I showed at page 90, the exhausted sexual apparatus in aggravated examples furnishes a watery fluid which may be devoid of fertilizing elements. Under these circumstances the history of the case, and the associated general symptoms are to be considered in framing the diagnosis ; and this is particularly true of the examples in which a discharge is expressed at stool, and which in the majority of instances is merely the secretion of the prostate gland. Under the microscope the thin, more or less milky prostatic fluid will be found to contain cylinder epithelium, numberless colorless and refracting granules of lecithin, one-half the diameter of a red blood-corpuscule, and minute concentric amyloid concretions ; and spermatic crystals will soon make their appearance on the slide ; while the thin, transparent, azoospermous semen contains cylinder epithelium, and probably epithelium which has undergone fatty or colloid degeneration, a few lymph corpuscles, and abundance of fatty detritus, and possibly a few small shining bodies which are the remains of badly evolved spermatozoa.

In the absence of minute examination, the rule may be framed that the discharge which occurs during defecation

in persons who are laboring merely under too frequent nocturnal pollutions is an evidence of coexisting prostatorrhœa; while the flocculent sediment contained in the urine, and the discharge at stool in persons who are suffering from nocturnal and diurnal pollutions, and a slight continued discharge from the urethra represent semen. In the last case, the assumption that the orifices of the ejaculatory ducts are relaxed will generally be correct, and it will be strengthened if the patient is impotent.

PROGNOSIS.—According to my experience, the prognosis of seminal incontinence is far from being so unfavorable as many writers would lead one to believe. In regard to increased frequency of nocturnal emissions, the phase of the affection about which the physician is most frequently consulted, I have no hesitation in declaring that it yields readily to treatment, particularly when it is caused or kept up by appreciable local lesions, such as hyperæsthesia of the prostatic urethra, stricture, or hemorrhoids. The subject of Case XVI., page 39, is an excellent and not uncommon illustration of the truth of this statement. The pollutions had been excessive for two years, and were complicated by prostatorrhœa and a mild grade of impotence. On the 8th of April, I divided a stricture which was seated just behind the meatus, and ordered thirty grains of bromide of potassium to be taken at intervals of eight hours, along with one-sixtieth of a grain of atropia at bedtime, and a laxative pill as it might be required.

On the 6th of May, a No. 30 conical steel bougie having been passed at stated intervals to overcome the morbid sensitiveness of the prostatic urethra, the patient reported that he had emissions on the nights of April 17 and 18; and four weeks later he informed me that he had a pollu-

tion on the 22d of May. Equally rapid and gratifying results were obtained in the following example :

CASE XXXVIII. A teacher, twenty-four years of age, had masturbated up to five years ago. He then began to be troubled with nocturnal emissions, which frequently occurred for five consecutive nights, when there would be an interval of freedom for ten days. For the past two years the erections have been flabby, and ejaculation has been premature; but with the exception of pain in the back, there have been no other signs of spinal exhaustion. The urethra has been very sensitive, but there has been no stricture. The measures employed were the same as those resorted to in the preceding case, with the addition of a hot sitz-bath at night. He was ordered to be awakened early in the morning, with the view to empty his bladder. The lumbar pain ceased after the fourth insertion of the bougie; and when I saw him, three weeks subsequently, he told me that he had been entirely free from pollutions.

Of the local lesions causative of nocturnal pollutions, by far the most rebellious to treatment which I have encountered is chronic inflammation of the seminal vesicles, of which the following is an instance :

CASE XXXIX. A man, twenty-two years of age, contracted gonorrhœa, which extended to the vesicles, where it set up acute inflammation. When he came to me, the acute signs had subsided, and for three months he had had painful pollutions, which frequently occurred two or three times during the night, when they left a yellowish-red stain upon his linen. There was a constant sense of fulness and bearing-down pain in the rectum. The suffering was increased by urination, defecation, and erections. The rectal touch disclosed two ovoidal, hot, and very tender bodies in the region of the vesicles; and there was a discharge of muco-purulent fluid from the urethra. Under sedative measures, and the local application of astringent solutions to the prostatic urethra,

and of flying blisters to the perineum, I succeeded, after the expiration of seven months, in reducing the number of pollutions to one a week; and when I last saw him, three months afterwards, he had not had an emission for thirty days.

With the above exception, when the pollutions are maintained by local lesions, and are associated with signs of myelasthenia, the prognosis is good, but the patient will have to remain longer under treatment than when signs of nervous exhaustion are absent. The outlook is still favorable when symptoms of cerebrasthenia are present; but it is decidedly bad if the subject is a sexual hypochondriac. Even when the emissions occur during the progress of acute or chronic general affections, the prognosis is not dismal, since I find that, in a case of progressive muscular atrophy and commencing bulbar paralysis, Stéphanides succeeded in checking them by the internal exhibition of atropia, and that Nowatschek was equally successful with the same remedy in an example of an aggravated form of spermatorrhœa, the result of typhus.

The prognosis is far better when the usual local lesion, namely, hyperæsthesia of the prostatic urethra, has been induced by gonorrhœa than when induced by masturbation; and it is also more favorable when the emissions occur in mature years from sexual excesses than when they are due early in life to onanism, especially if the youthful subjects evince a tendency to inherited nervous disorders.

The outlook is favorable when the pollutions occur during the day, or when the patient is awake, and when they are excited by slight mechanical or psychical causes, as is illustrated by the following case :

CASE XL. A merchant, thirty-eight years of age, consulted me on the 16th of October, 1883, on account of diurnal pollu-

tions, of eighteen years' standing, induced by riding, by impure thoughts, and even by bathing, and complicated by nocturnal emissions. The urethra was hyperæsthetic, particularly in its prostatic portion, the meatus was contracted, and a stricture was detected immediately behind it. The stricture and meatus were divided; conical steel bougies of gradually increasing sizes were methodically passed, and bromide of potassium was administered for five weeks, when it was followed by the fluid extract of ergot for three weeks. The pollutions finally ceased, and the man married three months after he first came under observation.

TREATMENT.—In all cases of involuntary seminal emissions certain hygienic and moral rules must be observed. The diet should be nutritious and digestible, the evening meal in particular being light and dry, and all stimulating articles of food, as well as spirituous and malt liquors, should be avoided. Before retiring, the bladder is to be thoroughly emptied, and the habit of sleeping on the side upon a hair mattress without much covering should be cultivated. As the morning fulness of the bladder has a very decided tendency to induce erections, and as emissions usually occur in the morning, the patient should set an alarm clock one hour before the time at which he has usually observed that the pollutions take place, in order that he may be awakened to relieve that viscus of its contents. Horseback exercise and driving over rough roads should be interdicted. Masturbation, in which if the man be single he still in all probability indulges, and sexual intercourse must be abandoned, and the patient should be told that this enforced rest of the organs will possibly result in temporary increased frequency of the pollutions. Everything calculated to excite erotic thoughts and desire should be scrupulously avoided. With this end in view, he should keep the mind and body pleasantly occupied ; and if he happens to

belong to the class of society that has nothing to do, and if he is still robust and vigorous, he should have recourse to gymnastic exercises, or to the close study of any subject which he may most fancy. If, on the other hand, there are commencing or marked signs of spinal exhaustion, mental and physical moderation should be enjoined.

An essential part of the treatment is the removal of any reflex or eccentric lesions or causes which predispose to the occurrence of seminal losses, or even excite them in impossibly subjects. Hence, the external genitalia and the anus and the rectum should be subjected to a careful examination. In many cases without the presence of a positive phimosis the redundant prepuce keeps the sensitive gland of the penis constantly moist, and favors the collection of sebaceous matter. The latter condition is very common among the lower classes, and whether circumcision be resorted to or not, and I always advise it, the greatest cleanliness should be enjoined. Herpes of the prepuce and gland usually readily yields to attention to the bowels and diet, and to dusting the parts with subnitrate of bismuth and calomel, or to touching the excoriations, if they should exist, with a five-grain solution of nitrate of silver, and dressing them afterwards with scraped lint. If the meatus be contracted, or if a stricture be seated behind that orifice, it should be divided; and a short frenum should be clipped with the scissors. Internal piles should be ligated; external piles be opened; rectal fissure be divided or lacerated by overstretching the sphincter; and pruritus be remedied by cleanliness and the application of four grains of the bichloride of mercury to the ounce of water, or three grains of the cyanide of potassium to the ounce of balsam of Peru. A varicocele, between which and spermatorrhœa, however, I see no causal relation, should be properly suspended, or

be subjected to subcutaneous ligation if it be large and annoying. Habitual constipation, which is met with in one-third of the cases, demands particular attention. If there is atony of the intestines, the compound aloin pill, for which the formula is given on page 51, will answer a good purpose. In the majority of cases enemata of temperate water will fulfil the indication; or the patient may take two or three drachms of equal parts of Rochelle and Epsom salt in a tumbler of water before breakfast, or four ounces of Hunyadi or Friedrichshall water, or of an artificial mineral water composed of an ounce of sulphate of magnesium, a drachm of bitartrate of potassium, and ten grains of sulphate of iron to a quart of water. This was a favorite remedy of the late Professor Dunglison, and I can bear testimony to its efficacy.

Of the exciting causes of abnormal seminal losses by far the most constant and important are subacute or chronic inflammation and hyperæsthesia of the prostatic portion of the urethra and of the orifices of the ejaculatory ducts, conditions which are frequently maintained and aggravated by stricture of the passage anterior to them. Of the treatment of stricture I can only refer to my views published elsewhere,¹ as its consideration would be out of place here; but I may add that, although the stricture may be palliated by dilatation, and although the emissions may entirely cease under the employment of that measure, they will be sure to recur unless the bougie is methodically employed during the remainder of life.

With regard to the inflammation and exaggerated sensibility and irritability of the prostatic urethra, I need only say that the general and local measures for their relief do

¹ Consult p. 43.

not differ in any respect from those indicated in the chapter on Impotence, pages 41-52.

In all cases of seminal incontinence, with rare exceptions, the remedies at the outset should be directed to overcoming the sensibility of the mucous membrane of the urethra, of the ejaculatory ducts, and of the seminal vesicles; to subduing the irritability of the muscles concerned in ejaculation; and to diminishing the reflex excitability of the genitospinal centre. Hence, they should be of a calming and sedative nature. By the ignorant and indiscriminate employment of strychnia, cantharides, phosphorus, damiana, and cold sitz-baths or affusions during the stage of hyperæsthesia, much harm is done, and the therapeutics of spermatorrhœa are brought into disrepute. Premising the statement that the tonic should follow the sedative plan of treatment, I will now give an outline of my views as to the best management of the varieties of the affection.

Under all circumstances, thirty grains of bromide of potassium, along with about ten drops of the fluid extract of gelsemium,¹ every eight hours, and one-sixtieth of a grain of sulphate of atropia² on retiring, are worth all the other internal remedies combined. In anæmic subjects, the bromide may be administered at night, and quinine and iron be exhibited during the day; but if the bromide be badly borne, it should be guarded in the manner which is indicated on page 50, or it may be replaced by about the one-seventieth of a grain of hydrobromate of hyoscine, or twenty grains of chloral hydrate, on retiring. Not only does atropia diminish the reflex mobility of the genitospinal centre, but the researches of Keuchel, Heidenhain, and

¹ Bartholow, op. cit., p. 415.

² Consult page 50.

Stricker and Spina,¹ show that it paralyzes the movements of the cells of the acinous glands and checks their secretion, so that it cannot be dispensed with.

Of the local remedies, the conical steel bougie² occupies the first rank; but when the inflammation and tenderness are reduced to a circumscribed area which includes the openings of the ejaculatory ducts, it should give way to the application of nitrate of silver,³ a remedy which is usually decried by physicians who appear to have no practical experience with medication of the urethra, but which is highly recommended by such men as Troussseau,⁴ Niemeyer,⁵ C. Handfield Jones,⁶ and Rosenthal,⁷ and by the most eminent surgeons. In addition to these measures, the hot sitz-bath⁸ is invaluable; and Harrison⁹ advises douching the lower part of the spine with water at the temperature of 120° F.

Under this course of treatment, the majority of cases of nocturnal pollutions recover; but it may happen that the reflex genital centre is still too impressible, in which case galvanization,¹⁰ with the anode to the lumbar region and the cathode to the perineum,¹¹ will prove highly serviceable.

After the hyperæsthetic symptoms have subsided, if, from the occurrence of diurnal pollutions and of spermorrhagia, there is reason to suspect dilatation and atony of the mouths of the ejaculatory ducts, the continuous current, with the negative reophore in the rectum, and the positive on the

¹ Rosenthal, *Wiener Klinik*, May, 1880, p. 161.

³ Consult page 44.

² Consult page 41.

⁴ Op. cit., t. ii. p. 643.

⁵ Text-Book of Practical Medicine, New York, 1870, vol. ii. p. 100.

⁶ Functional Nervous Disorders, p. 733.

⁷ Loc. cit., p. 162.

⁸ Consult page 51.

⁹ Op. cit., p. 62.

¹⁰ Consult page 54.

¹¹ Benedikt, *Elektrotherapie*, p. 466.

perineum or the lumbar vertebræ, affords the most striking results. This plan is recommended by Möbius;¹ and in one case I succeeded in affording relief in twenty days by twelve sittings. Should galvanization prove inadequate, the induced current may be passed through a negative catheter electrode in the prostatic urethra to the anode placed on the perineum or spine; but this mode of application requires great caution,² and care should be taken to employ a feeble power at the commencement. Hence I prefer, with Ultzmann,³ Rosenthal,⁴ and Möbius, to replace the urethral by the rectal reophore. In the absence of electrical apparatus, the tonicity of the muscles of the ejaculatory ducts may be greatly improved and even restored by the use of the psychrophor,⁵ by the application of nitrate of silver, and by cold sitz-baths,⁶ and the dashing of cold water against the perineum. In these cases of relaxation and atony of the ducts, ergot, which, if I do not mistake, was first employed by Mitchell,⁷ of New York, is also indicated, half a drachm of the fluid extract being administered in water after each meal; and strychnia should also be given in gradually increasing doses. Fifteen drops of a mixture composed of six drachms of tincture of chloride of iron and two drachms of tincture of cantharides will also prove serviceable. With the curious device of Troussseau,⁸ namely, an ivory or vulcanite plug inserted into the rectum, I have had no experience, nor does it appear to have met with favor. The same writer refers to Richard's good results from forcible dilatation of the anus; and I can readily imagine that it would be productive of benefit, if there was

¹ Memorabilien, Heilbronn, 1879, 24, p. 545.

² Consult page 55.

⁴ Loc. cit., p. 162.

⁶ Consult page 53.

⁸ Op. cit., t. ii, p. 645.

³ Wiener med. Presse, 1876, p. 641.

⁵ Consult page 53.

⁷ Amer. Med. Monthly, April, 1861, p. 282.

spasm of the sphincter. Of the operation of castration, which some patients demand, and which some surgeons are weak enough to perform, I have only to say that I deem it unscientific and barbarous.

When spermatorrhœa is incident to organic lesions of the cerebrospinal axis, or to convalescence from debilitating diseases, the treatment is that of the affection itself, with the addition of atropia and of bromide of potassium, if the latter remedy is not contraindicated.

To sum up the results of my experience in the management of abnormal seminal losses, I may add that the steel bougie, bromide of potassium, and atropia are especially adapted to cases of nocturnal emissions, and that electricity, ergot, and strychnia are the most reliable agents in diurnal pollutions and spermorrhagia.

After recovery, moderation in sexual intercourse should be enjoined if the patient is married; matrimony should be advised if his circumstances and inclinations warrant it; and continence in thought and in action should be observed if he remains single. Under no consideration should marriage be thought of until the urethral lesions have been subdued, and the pollutions materially diminished in frequency. I have met with many cases in which, acting upon the advice of their physicians, patients have regretted such an action, and their lives been rendered miserable from the fact that not only did the emissions not cease, but the sexual excitement to which they were subjected aggravated the weakness of the genitospinal centre, through which one of the varieties of impotence was superadded to the original trouble.

CHAPTER IV.

PROSTATORRHŒA.

PROSTATORRHŒA, an affection which was first described by S. D. Gross,¹ signifies a discharge from the urethra of the secretion of the prostate gland, especially after defecation and micturition. It may exist with or without inflammation of the prostate, representing in the former event a catarrh, and in the latter merely a hypersecretion of the tubular glands of that organ. I believe that the malady is generally due to passive congestion ; and I am certain that it does not follow an attack of acute inflammation of the prostate.

In the majority of examples prostatorrhœa is a complication of other disorders of the generative organs. Thus, of seventy-nine cases of which I have notes, in only twenty-one did it exist alone ; while it was associated with nocturnal pollutions in five, of which Case XXXIII., p. 134, is an illustration ; with emissions and various grades of impotence in thirty-one, of which Case XVI., p. 39, is an instance ; with impotence alone in twenty ; and with aspermatism in two, as in Case XXX., p. 121. Hence my account is limited to the disease in its pure form.

ETIOLOGY.—Of the twenty-one cases, two began at the age of eighteen, thirteen between twenty and thirty, five between thirty and forty years, and one at forty-six ; while

¹ North American Med.-Chir. Rev., July, 1860, p. 693.

eighteen of the subjects were single, and three were married. In thirteen it was due to masturbation, in five to the extension of gonorrhœal inflammation, in one to masturbation and gonorrhœa, and in two to onanism practised early in life and to marital sexual excesses. In all there was exaggerated sensibility of the prostatic portion of the urethra, which was complicated by spasm of the compressor urethrae muscles in two, and by stricture in nineteen. In eight there was one coarctation, which was seated within the first half an inch of the canal in six, and in the bulb in two; in ten two strictures were detected, of which the first was near the meatus, and the second was in the bulbous urethra in nine, and at the penoscrotal junction in one; and in one there were three strictures, which were seated, respectively, just behind the meatus, at two inches and a half from the meatus, and in the bulbous urethra.

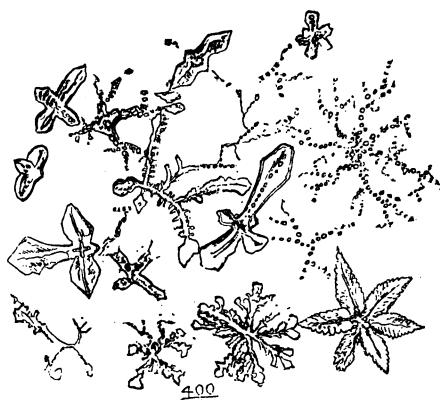
These observations correspond with those of S. D. Gross, who also states that the affection may be traced to disorders of the rectum, and that intemperance in eating and drinking, horseback exercise, drastic cathartics, cantharides, and spirits of turpentine, or, in short, whatever is likely to produce a determination of blood to the pelvic organs, tends to excite it. Ledwich¹ narrates a case in which it appears to have been occasioned by riding for several consecutive days in cold, damp weather; and both he and Lee² believe that the strumous diathesis predisposes to its occurrence; and others trace it to sedentary habits. While I cannot deny the accuracy of these statements, I may be permitted to express my conviction that none of the above-mentioned causes are capable of lighting up the affection independently of some preexisting lesion of the prostatic urethra.

¹ Dublin Quart. Journ. of Med. Sci., vol. xxiv. p. 35.

² St. George's Hosp. Reps., vol. vi. p. 26.

CLINICAL HISTORY.—The most prominent symptom of the disease is the discharge of a thin, and, as a rule, more or less milky, acid fluid from the meatus, which may be constant in its appearance, but which is always expressed from the urethra during straining at stool and during the forcible expulsion of the last drops of urine, or even during sneezing, coughing, or laughing. The quantity secreted may be

FIG. 16.



Prostatic crystals.

merely sufficient to induce an unpleasant sensation of wetness in the urethra and to agglutinate the lips of its orifice; or it may amount to a drachm or more during the twenty-four hours, and keep the linen stained. However this may be, it is increased by riding, by driving, by alcoholic and malt liquors, and by the contraction of the perineal and other muscles during defecation and urination. Under the microscope it will be found to consist of cylindrical epithelial cells, countless refracting and colorless granules of lecithin, and of minute, yellowish, concentric, amyloid concretions; and after it has slowly dried upon the slide crystals of phosphate of magnesium, as in Fig. 13, page 80, or of ammonio-

magnesian phosphate, as in Fig. 16 from one of my patients, will make their appearance. These characters, along with the absence of spermatozoa, serve to distinguish it from semen and ordinary urethral discharges. When the secretion depends upon chronic catarrhal inflammation of the glands of the prostate, it is thicker, and contains, in addition to the foregoing morphological elements, pus and mucous corpuscles, and filiform mucopurulent casts of the follicles and ducts.

The escape of the fluid is occasionally attended with a pleasurable feeling of titillation; or there may be a dropping sensation in the urethra, which is due to reflex contraction of the muscular substance of the prostate induced by repletion of the glands with the secretion, and its consequent discharge into the prostatic sinus; or there may be a constant feeling of moisture in the canal. All of these abnormal sensations are increased by erections.

The only remaining local signs with which I have met were frequent and urgent desire to relieve the bladder in four; occasional scalding during urination in two; the loss of a few drops of blood at the end of the act in two; painful ejaculation in one; a sense of weight and fulness in the rectum after stool in two; and dull pains in the perineum, which were increased by exercise, especially in warm weather, in three. Hence, with the exception of pains radiating from the pelvis through the hips and thighs, and a constant sense of uneasiness about the loins, these symptoms agree with those portrayed by Adams,¹ who described the affection as "Prostatitis from Onanism," and they are confirmatory of the observations of S. D. Gross.

Prostatorrhœa differs widely from the affections which

¹ Anatomy and Diseases of the Prostate Gland, 1851, p. 48.

have already been considered in the absence of signs which point to nervous exhaustion, as I have met with them in only one example, of which the following is a brief account:

CASE XLI. A banker, thirty-two years of age, had masturbated from his twelfth to his twenty-second year, when he married, and, to avoid having children, indulged in incomplete connection. At the expiration of six or eight months he began to be troubled with intermittent prostatic discharges at stool, and to experience fatigue on mental and physical exertion. When I saw him, ten years after the appearance of these symptoms, he was suffering from habitual constipation, indigestion, acid eructations, furred tongue, bad taste in the mouth, dizziness, *muscae volitantes*, troubled and unrefreshing sleep, impairment of memory, almost constant pain in the back of the head, neck, and left shoulder, incapacity for mental exertion, muscular weakness of the limbs, constant pain in the back, a sensation of numbness along the outer side of the left thigh, and occasional flushes of heat. The prostatic discharge had been habitual for many years at the water-closet and during erections, and there was a sense of fulness and weight in the rectum. The prostatic urethra was morbidly sensitive, and the bulbous explorer defined strictures at one-third of an inch from the meatus, calibre 22, and at five inches and three-quarters, calibre 18.

Cases of a somewhat similar nature are narrated by Ledwich; but in these as well as in my own it should be remarked that the signs of nervous exhaustion were dependent upon natural and unnatural excesses, and were in no wise connected with the diseased condition of the prostate. In only two of the patients under my care were the bowels habitually costive; and in only one was there back-ache.

Sixteen of the subjects consulted me under the fixed impression that they were suffering from spermatic incontinence, so that their minds dwelt constantly on the dis-

charge, and two were verging upon hypochondrism. I was, however, fortunate enough to convince them that the fluid was free from spermatozoa, and in this way succeeded in eliminating an element which would otherwise have perpetuated and aggravated the disease.

PATHOLOGICAL CHARACTERS.—In two patients, dead of phthisis, Ledwich succeeded in obtaining post-mortem examinations, and describes the appearances in the following terms: “The prostato-vesical plexus was full, and many of its branches varicose; the capsule of the prostate adhered intimately to its surface, and, on slicing the gland, it seemed soft, with large, open venous branches on the section, from which blood exuded, whilst the whole gland exhibited an augmented volume; the mucous membrane of its urethral aspect was red, soft, thickened, and villous, whilst the ducts could be distinguished with the unassisted eye, the uvula and trigone vesicæ were red and turgid, but the remainder of the bladder was healthy.”

These cases, and they are the only ones on record of which I have any knowledge, demonstrate that the affection, in some instances, is essentially a chronic inflammation of the glandular apparatus of the prostate, with relaxation, and consequent dilatation of, the muscular fibres which surround the orifices of the ducts. Hence the discharge may be readily accounted for by the contraction of the muscular elements incited into action whenever the acini and ducts become distended by the abnormal secretion, or by the pressure exerted upon them during the first expulsive efforts of defecation and urination. This view is moreover confirmed by the subjective and objective symptoms, of which the most characteristic is the morbid sensibility evoked by the introduction of a sound. In a few cases the

urgent and frequent calls to empty the bladder, the scalding during the act, and the passage of drops of blood at its completion, point in the same direction, as does also the tumid and tender condition of the prostate, as elicited by rectal examination, with which I have met in two instances.

DIAGNOSIS.—In the inflammatory form of the affection, if the patient be requested to pass the first two or three ounces of urine in a glass, that fluid will be found to contain delicate filiform shreds, which are sometimes more than half an inch in length, and which are mucopurulent casts of the follicles and ducts of the prostate. This highly characteristic sign, when considered in connection with the local signs and the minute examination of the discharge, the composition of which has already been sufficiently considered, is quite sufficient to establish the true nature of the trouble. In the simple variety of the disorder, the thread-like casts are absent, so that the diagnosis will have to be based on the microscopical appearances of the secretion.

PROGNOSIS.—Prostatorrhœa is a most obstinate affection, unless it is subjected to early and persevering treatment. Ordinarily the outlook, especially when the discharge is comparatively recent, is most favorable, as the disease does not evince any tendency to suppuration or other lesions of the body of the organ. This statement is substantiated by Case XVI., page 39, in which a discharge of two years' duration entirely ceased under appropriate measures in eight weeks. When mental disquietude and gloom are so great that the patient cannot be convinced that his malady is harmless, the prognosis is grave, and the management is most unsatisfactory.

TREATMENT.—When any lesion, as, for example, stricture, phimosis, or internal piles, which tends to maintain the disorder has been relieved, the therapeutics of prostatorrhœa are essentially those of impotence and spermatorrhœa, the remedies being addressed to the relief of the morbid sensibility of the prostatic sinuses, the atony of the ducts, and the cessation of the discharge. To avoid needless repetition I will, therefore, merely indicate the measures which I have found to yield the best results.

The bowels should be kept in a soluble condition, and straining at the closet should be avoided. Driving, riding, and much walking, if prolonged exercise excites pain in the perineum, or aggravates it if it be present, alcoholic and malt liquors, and sexual intercourse and unnatural practices must be interdicted. If, however, the subject be married, and if he finds that coition is not attended with painful ejaculations, or that it does not increase the sensation of soreness in the perineum, it may be moderately indulged in. In every instance, except two in which the affection was respectively of six and ten years' duration, the warm hip-bath,¹ the introduction of the bougie,² and the exhibition of bromide of potassium³ and atropia,⁴ combined with tincture of hyoscyamus and bicarbonate of potassium if there were vesical irritability and scalding on urination, fulfilled the indications. Rosenthal,⁵ indeed, speaks more favorably of atropia in prostatic than in seminal discharges, and my own experience fully confirms his views. In the two exceptional cases, after the exaggerated sensibility of the prostatic urethra had been allayed by the preceding treatment, and the discharge was apparently kept up by an

¹ Consult p. 51.

² Consult p. 41.

³ Consult p. 49.

⁴ Consult p. 50.

⁵ Wiener Klinik, May, 1880, p. 160.

atonic and dilated state of the orifices of the ducts, I stopped the above-mentioned measures, but continued the atropia, and finally succeeded in effecting a cure by the administration of the fluid extract of ergot,¹ cold sitz-baths² morning and evening, the injection of thirty grains of nitrate of silver to the ounce,³ and the application of flying blisters to the perineum,⁴ which I consider indispensable. Winter-nitz recommends the psychrophor⁵ for this condition, and Lederer⁶ also regards it with favor; while Lee⁷ relies upon the injection of a solution composed of from two to four drachms of the liquor ferri persulphatis to eight ounces of water; and Ultzmann⁸ has obtained good results from the induced current with one reophore in the rectum. I have had no experience with these remedies, but think well of the last, and would employ it if the case resisted the measures which I have indicated.

¹ Consult p. 158.

² Consult p. 53.

³ Consult p. 44.

⁴ Consult p. 49.

⁵ Consult p. 53.

⁶ Wiener med. Presse, 1879, p. 306.

⁷ Loc. cit., p. 34.

⁸ Wiener Klinik, May and June, 1879, p. 164.

INDEX.

ACETATE of lead in the treatment of azoospermism, 109
Anæsthetic aspermatism, 121
 diagnosis of, 124
 prognosis of, 126
 treatment of, 127
Anorchidism, 84
Anus, affections of, as causes of spermatorrhœa, 147
Aspermatism, 109
 anæsthetic, 121
 atonic, 119
 organic, 110
 psychical, 123
Atonic aspermatism, 119
 diagnosis of, 124
 prognosis of, 126
 treatment of, 126
 impotence, 20
 classification of, 28
 clinical history of, 39
 diagnosis of, 37
 etiology of, 21
 prognosis of, 39
 treatment of, 41
Atrypia in treatment of impotence, 50
 of prostatorrhœa, 167
 of spermatorrhœa, 156
Azoospermism, 84
 diagnosis of, 103
 from abnormal states of semen, 90
 from affections of testes, 87
 from anorchidism, 84
 from cryptorchidism, 86
 from defects of epididymes, 85
 from defects of vasa deferentia, 85
 from neurasthenia, 92

Azoospermism—
 from obliteration of epididymes, 88
 from obliteration of vasa deferentia, 88
 from sexual excesses, 90
 prognosis of, 105
 treatment of, 107

BICHLORIDE of mercury in treatment of azoospermism, 109
Bromide of potassium in treatment of impotence, 49
 of prostatorrhœa, 167
 of spermatorrhœa, 156

CANTHARIDES in the treatment of spermatorrhœa, 158
Catheter-syringe, 46
Cerebrasthenia, 37
Conical bougie in treatment of impotence, 41
 of prostatorrhœa, 167
 of spermatorrhœa, 157
Constipation a cause of spermatorrhœa, 147
Cryptorchidism, 86
Crystals, prostatic, 164
 spermatic, 80
Cupped bougie, 48

DAMIANA in treatment of impotence, 53
Diurnal pollutions, 134

Ducts, ejaculatory, absence of, 111
deviation of, 111
occlusion of, 111

ELECTRICITY in treatment of impotence, 54
of prostatorrhœa, 168
of spermatorrhœa, 157
Epididymes, deficiency of, 85
obliteration of, 88
Epididymitis, gonorrhœal, 89, 100
Erection, mechanism of, 17
Ergot in treatment of prostatorrhœa, 168
of spermatorrhœa, 158
Exhaustion, spinal, 36
a cause of azoospermism, 92
Exploratory bougie, 37

FARADISM in treatment of impotence, 55
of prostatorrhœa, 168
of spermatorrhœa, 157

GALVANISM in treatment of azoospermism, 107
of impotence, 54
of spermatorrhœa, 157
Gelsemium in treatment of impotence, 50
of spermatorrhœa, 156
Genitospinal centre, 18
diminished excitability of, 20
increased excitability of, 130
Glycerole of tannin in treatment of impotence, 48
Gonorrhœa, a cause of impotence, 28
of prostatorrhœa, 163
of spermatorrhœa, 145
Gonorrhœal epididymitis, 89, 100

HERPES, a cause of spermatorrhœa, 146
Hyperæsthesia of the urethra, a cause of impotence, 21
of prostatorrhœa, 161
of spermatorrhœa, 145

IMPOTENCE, 17
atonic, 20
organic, 66
paralytic, 34
psychical, 57
symptomatic, 63

Iodide of potassium in treatment of azoospermism, 109
Iodoform in treatment of azoospermism, 109
Iron in treatment of impotence, 50, 52
of prostatorrhœa, 168
of spermatorrhœa, 156, 158
Irritable weakness, 31
Irritation, spinal, 36

LAXATIVES in treatment of impotence, 51
of prostatorrhœa, 167
of spermatorrhœa, 155

MASTURBATION, effects of, 22
hyperæsthesia of urethra from, 21

nervous disorders from, 26
prostatorrhœa from, 161
spermatorrhœa from, 143
stricture of urethra from, 23
Meatus, stricture of, a cause of spermatorrhœa, 146
Misemission, 128
Monobromide of camphor in treatment of impotence, 50
Morphism, a cause of azoospermism, 97
Myelasthenia, 36

NEURASTHENIA, a cause of azoospermism, 92
of impotence, 36
of prostatorrhœa, 164
of spermatorrhœa, 142

Nitrate of silver in treatment of impotence, 44
of prostatorrhœa, 168
of spermatorrhœa, 157
Nocturnal pollutions, 131

ORGANIC aspermatism, 110diagnosis of, 124
prognosis of, 126
treatment of, 126

Organic impotence, 66

PENIS, lesions of, causes of impotence, 66Phimosis, a cause of aspermatism, 118
of spermatorrhœa, 146

Phthisis, a cause of azoospermism, 95

Pollutions, diurnal, 134

nocturnal, 131

Porte-caustique, 47

Porte-remède, 47

Prospermatism, 32

Prostatic crystals, 164

fluid, uses of, 79

Prostatorrhœa, 160

clinical history of, 162

diagnosis of, 166

etiology of, 160

pathological characters of, 165

prognosis of, 166

treatment of, 167

Psychical aspermatism, 123

prognosis of, 126

treatment of, 128

impotence, 57

treatment of, 62

Psychrophor in treatment of impotence, 53

of prostatorrhœa, 168

of spermatorrhœa, 158

Purulent semen, 98

QUININE in treatment of impotence, 50, 53

of spermatorrhœa, 156

RECTUM, affections of, causes of prostatorrhœa, 161

of spermatorrhœa, 147

SEMEN, abnormal conditions of, 90-102

bloody, 102

colloid, 104

Semen—

composition of, 77

purulent, 98, 104

watery, 104

Sexual excesses, causes of azoospermism, 90

of impotence, 28

of prostatorrhœa, 161

of spermatorrhœa, 143

Sitz-bath, warm, in treatment of impotence, 51

of prostatorrhœa, 167

of spermatorrhœa, 157

cold, in treatment of impotence, 53

of prostatorrhœa, 168

of spermatorrhœa, 158

Spinal exhaustion, 36

a cause of azoospermism, 92

of impotence, 36

of prostatorrhœa, 164

of spermatorrhœa, 142

Spermaspasmos, 31

Spermatic crystals, 80

colic, 124

Spermatocystitis, a cause of azoospermism, 99

of spermatorrhœa, 147

Spermatozoa, 79

absence of, 90

infertile, 92-97

Spermatorrhœa, 130

anatomical characters of, 148

classification of, 130

clinical history of, 138

diagnosis of, 149

etiology of, 141

prognosis of, 150

spasmodic, 31

treatment of, 153

Spermorrhagia, 136

Sterility, 77

classification of, 82

from aspermatism, 109

from azoospermism, 84

from misemission, 128

relative frequency of, 83

Stricture of ejaculatory ducts, 111

of urethra from masturbation, 23

a cause of aspermatism, 116

of prostatorrhœa, 161

of spermatorrhœa, 144

Strychnia in treatment of impotence, 52

<p>Strychnia in treatment of spermatorrhœa, 158</p> <p>Sympexions, 114</p> <ul style="list-style-type: none"> diagnosis of, 124 treatment of, 126 <p>Symptomatic impotence, 63</p> <ul style="list-style-type: none"> prognosis of, 65 treatment of, 65 <p>Syphilis, a cause of azoospermism, 97</p> <p>TESTES, absence of, 84</p> <ul style="list-style-type: none"> atrophy of, 87 lesions of, in azoospermism, 87 	<p>Testes, lesions of—</p> <ul style="list-style-type: none"> in impotence, 74 retained, 85 <p>URETHRA, hyperaesthesia of, 21</p> <ul style="list-style-type: none"> stricture of, 23 <p>Urethral dilator, 42</p> <p>Urethrotome, 42</p> <p>VASA deferentia, deficiency of, 85</p> <ul style="list-style-type: none"> obliteration of, 88 <p>Veratrum viride in treatment of impotence, 50</p> <p>Vesication in impotence, 49</p> <ul style="list-style-type: none"> in prostatorrhœa, 168
---	---

LEA BROTHERS & CO.'S CLASSIFIED CATALOGUE OF MEDICAL AND SURGICAL Publications.

In asking the attention of the profession to the works advertised in the following pages, the publishers would state that no pains are spared to secure a continuance of the confidence earned for the publications of the house by their careful selection and accuracy and finish of execution.

The large number of inquiries received from the profession for a finer class of bindings than is usually placed on medical books has induced us to put certain of our standard publications in half Russia; and, that the growing taste may be encouraged, the prices have been fixed at so small an advance over the cost of sheep as to place it within the means of all to possess a library that shall have attractions as well for the eye as for the mind of the reading practitioner.

The printed prices are those at which books can generally be supplied by booksellers throughout the United States, who can readily procure for their customers any works not kept in stock. Where access to bookstores is not convenient books will be sent by mail by the publishers postpaid on receipt of the printed price, and as the limit of mailable weight has been removed, no difficulty will be experienced in obtaining through the post-office any work in this catalogue. No risks, however, are assumed either on the money or on the books, and no publications but our own are supplied, so that gentlemen will in most cases find it more convenient to deal with the nearest bookseller.

LEA BROTHERS & CO.

Nos. 706 and 708 SANSOM ST., PHILADELPHIA, March 1889.

PRACTICAL MEDICAL PERIODICALS.

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, Monthly, \$4.00 per annum. } To one address,
post-paid,

THE MEDICAL NEWS, Weekly, \$5.00 per annum. } \$ 7.50
per annum.

THE MEDICAL NEWS VISITING LIST (3 styles, see p. 3), \$1.25.
With either or both above periodicals, in advance, 75c.

THE YEAR-BOOK OF TREATMENT (see p. 17), \$1.25. With either JOURNAL or NEWS, or both, 75c. Or JOURNAL, NEWS, VISITING LIST and YEAR-BOOK, \$8.50, in advance.

WITH 1889, THE JOURNAL enters upon its sixty-ninth and THE NEWS upon its forty-seventh year. Anticipating the requirements of the times, THE NEWS changed from a monthly journal to a vastly larger weekly newspaper in 1882, and THE JOURNAL changed from a quarterly to a monthly in 1888, increasing its contents and simultaneously reducing its price. Jointly these two periodicals combine all that is possible and desirable in medical journalism, the promptness of the newspaper and the elaboration of the magazine.

(Continued on next page.)

The American Journal and The Medical News.

Continued from First Page.

Great care is exercised to make them thoroughly practical and of the utmost possible assistance in the every-day work of the physician, surgeon and obstetrician. The Departments of Progress, for instance, during 1888, contained 2300 individual articles on Medical Advances, gathered from the medical periodicals of the world. The Original Departments are filled with important communications from the most practical minds of the profession on both sides of the Atlantic, and the Reviews convey impartial judgments, as to the value of the most recent additions to the literature of medicine. In addition to the above features common to both, THE NEWS contains carefully gathered details of advanced Hospital Treatment, skilful Editorials on living topics, News Items, Society Proceedings, Notes and Queries, Correspondence, etc.

Designed to fill distinct and complementary spheres, these periodicals are most advantageously read in conjunction, and to lead every practitioner to prove this for himself the commutation rate has been placed at the very low figure of \$7.50. Their cheapness at this rate is rendered obvious by the consideration that they contain most valuable matter, equivalent to 9 octavo volumes of 700 pages each. Although fitted to be read together, each periodical is individually complete and contains no duplicated matter, so that every reader of either is kept thoroughly posted. The reader of both gains the grasp of medical advance which is assured by locating matters from different points of view.

As a premium for advance-payment to either or both the above periodicals, The Year-Book of Treatment (see page 17) is furnished for 75 cents (regular price, \$1.25). This convenient work gives an independent and classified statement of the value and uses of such remedies as have been introduced and tested with success during the year.

Similarly, The Medical News Visiting List, the most perfect work of its kind (see page 3), is furnished to advance-paying subscribers for 75 cents (regular price, \$1.25). Thumb-letter index, 25 cents extra.

OR, AS A SPECIAL OFFER,

JOURNAL, NEWS, YEAR-BOOK and VISITING LIST, in advance, \$8.50.

Subscribers can obtain, at the close of each volume, cloth covers for THE JOURNAL (one annually), and for THE NEWS (one annually), free by mail, by remitting Ten Cents for THE JOURNAL cover, and Fifteen Cents for THE NEWS cover.

NOTE—The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned; where these are not accessible, remittances for subscriptions may be sent at the risk of the publishers by forwarding in registered letters. Address,

LEA BROTHERS & CO., 706 & 708 Sansom Street, Philadelphia.

THE MEDICAL NEWS VISITING LIST FOR 1889

Has been revised and brought thoroughly up to date in every respect. It contains 48 pages of text, including calendar for two years; obstetric diagrams; scheme of dentition; tables of weights and measures and comparative scales; instructions for examining the urine; list of disinfectants; table of eruptive fevers; lists of new remedies and remedies not generally used; incompatibles, poisons and antidotes; artificial respiration; table of doses, prepared to accord with the last revision of the U. S. Pharmacopoeia; an extended table of Diseases and their remedies, and directions for ligation of arteries. 176 pages of blanks for all records of practice and erasable tablet. Handsomely bound in limp Morocco, with pocket, pencil, rubber and catheter scale.

THE MEDICAL NEWS VISITING LIST for 1889 is issued in three styles: Weekly (for 30 patients); Monthly, and Perpetual. Each, in one volume, \$1.25. Also, furnished with Ready Reference Thumb-letter Index for quick use, 25 cents additional. For special offers, including VISITING LIST, see page 2.

This list is all that could be desired. It contains a vast amount of useful information, especially for emergencies, and gives good tables of doses and therapeutics.—*Canadian Practitioner*, Jan. '88.

It is a masterpiece. Some of the features are peculiar to "The Medical News Visiting List," notably the Therapeutic Table, prepared by Dr. T. Lauder Brunton, which contains the list of dis-

eases arranged alphabetically, giving under each a list of the prominent drugs employed in the treatment. When ordered, a Ready Reference Thumb-letter Index is furnished. This is a feature peculiar to this Visiting List.—*Physician and Surgeon*, December, 1887.

For convenience and elegance it is not surpassable.—*Obstetric Gazette*, November, 1887.

THE MEDICAL NEWS PHYSICIANS' LEDGER.

Containing 400 pages of fine linen "ledger" paper, ruled so that all the accounts of a large practice may be conveniently kept in it, either by single or double entry, for a long period. Strongly bound in leather, with cloth sides, and with a patent flexible back, which permits it to lie perfectly flat when opened at any place. Price, \$5.00. Also, a small special lot of same Ledger, with 300 pages. Price, \$4.00.

HARTSHORNE, HENRY, A. M., M. D., LL. D.,

Lately Professor of Hygiene in the University of Pennsylvania.

A Conspectus of the Medical Sciences; Containing Handbooks on Anatomy, Physiology, Chemistry, Materia Medica, Practice of Medicine, Surgery and Obstetrics. Second edition, thoroughly revised and greatly improved. In one large royal 12mo. volume of 1028 pages, with 477 illustrations. Cloth, \$4.25; leather, \$5.00.

The object of this manual is to afford a convenient work of reference to students during the brief moments at their command while in attendance upon medical lectures. It is a favorable sign that it has been found necessary, in a short space of time, to issue a new and carefully revised edition. The illustrations are very numerous and unusually clear, and each part seems to have received its due share of attention. We can conceive such a work to be useful, not only to students, but to practitioners as well. It reflects credit upon the

industry and energy of its able editor.—*Boston Medical and Surgical Journal*, Sept. 3, 1874.

We can say with the strictest truth that it is the best work of the kind with which we are acquainted. It embodies in a condensed form all recent contributions to practical medicine, and is therefore useful to every busy practitioner throughout our country, besides being admirably adapted to the use of students of medicine. The book is faithfully and ably executed.—*Charleston Medical Journal*, April, 1876.

NEILL, JOHN, M. D., and SMITH, F. G., M. D.,

Late Surgeon to the Penna. Hospital.

Prof. of the Institutes of Med. in the Univ. of Penna.

An Analytical Compendium of the Various Branches of Medical Science, for the use and examination of Students. A new edition, revised and improved. In one large royal 12mo. volume of 974 pages, with 374 woodcuts. Cloth, \$4; leather, \$4.75.

LUDLOW, J. L., M. D.,

Consulting Physician to the Philadelphia Hospital, etc.

A Manual of Examinations upon Anatomy, Physiology, Surgery, Practice of Medicine, Obstetrics, Materia Medica, Chemistry, Pharmacy and Therapeutics. To which is added a Medical Formulary. Third edition, thoroughly revised, and greatly enlarged. In one 12mo. volume of 816 pages, with 370 illustrations. Cloth, \$3.25; leather, \$3.75.

The arrangement of this volume in the form of question and answer renders it especially suitable for the office examination of students, and for those preparing for graduation.

BILLINGS, J. S., A. M., M. D., LL. D., Harv. and Edin.,*Member National Academy of Sciences, Surgeon U. S. A., Etc.***A UNIVERSAL MEDICAL DICTIONARY**, including English, French, German, Italian and Latin Technical terms Used in Medicine and the Collateral Sciences. By JOHN S. BILLINGS, A. M., M. D., LL. D.

WITH THE COLLABORATION OF

FRANK BAKER, M. D.
JAMES M. FLINT, M. D.,
R. LORINE, M. D.,
S. M. BURNETT, M. D.,
J. H. KIDDER, M. D.,WASHINGTON MATTHEWS, M. D.,
H. C. YARROW, M. D.,
W. T. COUNCILMAN, M. D.,
WILLIAM LEE, M. D.,
C. S. MINOT, M. D.*In press.***DUNGLISON, ROBLEY, M. D.,***Late Professor of Institutes of Medicine in the Jefferson Medical College of Philadelphia.***MEDICAL LEXICON; A Dictionary of Medical Science**: Containing a concise Explanation of the various Subjects and Terms of Anatomy, Physiology, Pathology, Hygiene, Therapeutics, Pharmacology, Pharmacy, Surgery, Obstetrics, Medical Jurisprudence and Dentistry, Notices of Climate and of Mineral Waters, Formulae for Officinal, Empirical and Dietetic Preparations, with the Accentuation and Etymology of the Terms, and the French and other Synonyms, so as to constitute a French as well as an English Medical Lexicon. Edited by RICHARD J. DUNGLISON, M. D. In one very large and handsome royal octavo volume of 1139 pages. Cloth, \$6.50; leather, raised bands, \$7.50; very handsome half Russia, raised bands, \$8.

About the first book purchased by the medical student is the Medical Dictionary. The lexicon explanatory of technical terms is simply a *sine qua non*. In a science so extensive and with such collateral as medicine, it is as much a necessity also to the practising physician. To meet the wants of students and most physicians the dictionary must be condensed while comprehensive, and practical while perspicuous. It was because Dunglison's met these indications that it became at once the dictionary of general use wherever medicine was studied in the English language. In no former revision have the alterations and additions been so great. The chief terms have been set in black letter, while the derivatives follow in small caps; an arrangement which greatly facilitates reference.

—*Cincinnati Lancer and Clinic*, Jan. 10, 1874.

A book of which every American ought to be proud. When the learned author of the work

passed away, probably all of us feared lest the book should not maintain its place in the advancing science whose terms it defines. Fortunately, Dr. Richard J. Dunglison, having assisted his father in the revision of several editions of the work, and having been, therefore, trained in the methods and imbued with the spirit of the book, has been able to edit it as a work of the kind should be edited—to carry it on steadily, without jar or interruption, along the grooves of thought it has travelled during its lifetime. To show the magnitude of the task which Dr. Dunglison has assumed and carried through, it is only necessary to state that more than six thousand new subjects have been added in the present edition.—*Philadelphia Medical Times*, Jan. 3, 1874.

It has the rare merit that it certainly has no rival in the English language for accuracy and extent of references.—*London Medical Gazette*.

HOBLYN, RICHARD D., M. D.**A Dictionary of the Terms Used in Medicine and the Collateral Sciences.** Revised, with numerous additions, by ISAAC HAYS, M. D., late editor of The American Journal of the Medical Sciences. In one large royal 12mo. volume of 520 double-columned pages. Cloth, \$1.50; leather, \$2.00.

It is the best book of definitions we have, and ought always to be upon the student's table.—*Southern Medical and Surgical Journal*.

STUDENTS' SERIES OF MANUALS.

A Series of Fifteen Manuals, for the use of Students and Practitioners of Medicine and Surgery, written by eminent Teachers or Examiners, and issued in pocket-size 12mo. volumes of 300-540 pages, richly illustrated and at a low price. The following volumes are now ready: TREVES' *Manual of Surgery*, by various writers, in three volumes, each, \$2; BELL's *Comparative Physiology and Anatomy*, \$2; GOULD's *Surgical Diagnosis*, \$2; ROBERTSON's *Physiological Physics*, \$2; BRUCE's *Materia Medica and Therapeutics* (4th edition), \$1.50; POWER's *Human Physiology* (2d edition), \$1.50; CLARKE and LOCKWOOD's *Dissectors' Manual*, \$1.50; RALFE's *Clinical Chemistry*, \$1.50; TREVES' *Surgical Applied Anatomy*, \$2; PEPPER's *Surgical Pathology*, \$2; and KLEIN's *Elements of Histology* (3d edition), \$1.50. The following is in press: PEPPER's *Forensic Medicine*. For separate notices see index on last page.

SERIES OF CLINICAL MANUALS.

In arranging for this Series it has been the design of the publishers to provide the profession with a collection of authoritative monographs on important clinical subjects in a cheap and portable form. The volumes will contain about 550 pages and will be freely illustrated by chromo-lithographs and woodcuts. The following volumes are now ready: CARTER & FROST's *Ophthalmic Surgery*, \$2.25; HUTCHINSON on *Syphilis*, \$2.25; BALL on the *Rectum and Anus*, \$2.25; MARSH on the *Joints*, \$2; OWEN on *Surgical Diseases of Children*, \$2; MORRIS on *Surgical Diseases of the Kidney*, \$2.25; PICK on *Fractures and Dislocations*, \$2; BUTLIN on the *Tongue*, \$3.50; TREVES on *Intestinal Obstruction*, \$2; and SAVAGE on *Insanity and Allied Neuroses*, \$2. The following are in active preparation: BROADBENT on the *Pulse*, and LUCAS on *Diseases of the Urethra*. For separate notices see index on last page.

GRAY, HENRY, F. R. S.,*Lecturer on Anatomy at St. George's Hospital, London.*

Anatomy, Descriptive and Surgical. The Drawings by H. V. CARTER, M. D., and Dr. WESTMACOTT. The dissections jointly by the AUTHOR and Dr. CARTER. With an Introduction on General Anatomy and Development by T. HOLMES, M. A., Surgeon to St. George's Hospital. Edited by T. PICKERING PICK, F. R. C. S., Surgeon to and Lecturer on Anatomy at St. George's Hospital, London, Examiner in Anatomy, Royal College of Surgeons of England. A new American from the eleventh enlarged and improved London edition, thoroughly revised and re-edited by WILLIAM W. KEEN, M. D., Professor of Anatomy in the Pennsylvania Academy of the Fine Arts, etc. To which is added the second American from the latest English edition of *LANDMARKS, MEDICAL AND SURGICAL*, by LUTHER HOLDEN, F. R. C. S. In one imperial octavo volume of 1098 pages, with 685 large and elaborate engravings on wood. Price of edition in black: Cloth, \$6; leather, \$7; half Russia, \$7.50. Price of edition in colors (see below): Cloth, \$7.25; leather, \$8.25; half Russia, \$8.75.

This work covers a more extended range of subjects than is customary in the ordinary text-books, giving not only the details necessary for the student, but also the application to those details to the practice of medicine and surgery. It thus forms both a guide for the learner and an admirable work of reference for the active practitioner. The engravings form a special feature in the work, many of them being the size of nature, nearly all original, and having the names of the various parts printed on the body of the cut, in place of figures of reference with descriptions at the foot. In this edition a new departure has been taken by the issue of the work with the arteries, veins and nerves distinguished by different colors. The engravings thus form a complete and splendid series, which will greatly assist the student in forming a clear idea of Anatomy, and will also serve to refresh the memory of those who may find in the exigencies of practice the necessity of recalling the details of the dissecting-room. Combining, as it does, a complete Atlas of Anatomy with a thorough treatise on systematic, descriptive and applied Anatomy, the work will be found of great service to all physicians who receive students in their offices, relieving both preceptor and pupil of much labor in laying the groundwork of a thorough medical education.

For the convenience of those who prefer not to pay the slight increase in cost necessitated by the use of colors, the volume is published also in black alone, and maintained in this style at the price of former editions, notwithstanding the largely increased size of the work.

Landmarks, Medical and Surgical, by the distinguished Anatomist, Mr. Luther Holden, has been appended to the present edition as it was to the previous one. This work gives in a clear, condensed and systematic way all the information by which the practitioner can determine from the external surface of the body the position of internal parts. Thus complete, the work will furnish all the assistance that can be rendered by type and illustration in anatomical study.

The most popular work on anatomy ever written. It is sufficient to say of it that this edition, thanks to its American editor, surpasses all other editions.—*Jour. of the Amer. Med. Ass'n*, Dec. 31, 1887.

A work which for more than twenty years has had the lead of all other text-books on anatomy throughout the civilized world comes to hand in such beauty of execution and accuracy of text and illustration as more than to make good the large promise of the prospectus. It would be indeed difficult to name a feature wherein the present American edition of Gray could be mended or bettered, and it needs no prophet to see that the royal work is destined for many years to come to hold the first place among anatomical text-

books. The work is published with black and colored plates. It is a marvel of book-making.—*American Practitioner and News*, Jan. 21, 1888.

Gray's *Anatomy* is the most magnificent work upon anatomy which has ever been published in the English or any other language.—*Cincinnati Medical News*, Nov. 1887.

As the book now goes to the purchaser he is receiving the best work on anatomy that is published in any language.—*Virginia Med. Monthly*, Dec. 1887.

Gray's standard *Anatomy* has been and will be for years the text-book for students. The book needs only to be examined to be perfectly understood.—*Medical Press of Western New York*, Jan. 1888.

ALSO FOR SALE SEPARATE—**HOLDEN, LUTHER, F. R. C. S.,***Surgeon to St. Bartholomew's and the Foundling Hospitals, London.*

Landmarks, Medical and Surgical. Second American from the latest revised English edition, with additions by W. W. KEEN, M. D., Professor of Artistic Anatomy in the Pennsylvania Academy of the Fine Arts, formerly Lecturer on Anatomy in the Philadelphia School of Anatomy. In one handsome 12mo. volume of 148 pages. Cloth, \$1.00.

This little book is all that can be desired within its scope, and its contents will be found simply invaluable to the young surgeon or physician, since they bring before him such data as he requires at every examination of a patient. It is written in language so clear and concise that one ought almost to learn it by heart. It teaches diagnosis by external examination, ocular and palpable, of the body, with such anatomical and physiological facts as directly bear on the subject. It is eminently the student's and young practitioner's book.—*Physician and Surgeon*, Nov. 1881.

The study of these Landmarks by both physi-

cians and surgeons is much to be encouraged. It inevitably leads to a progressive education of both the eye and the touch, by which the recognition of disease or the localization of injuries is vastly assisted. One thoroughly familiar with the facts here taught is capable of a degree of accuracy and a confidence of certainty which is otherwise unattainable. We cordially recommend the Landmarks to the attention of every physician who has not yet provided himself with a copy of this useful, practical guide to the correct placing of all the anatomical parts and organs.—*Canada Medical and Surgical Journal*, Dec. 1881.

ALLEN, HARRISON, M. D.,*Professor of Physiology in the University of Pennsylvania.*

A System of Human Anatomy, Including Its Medical and Surgical Relations. For the use of Practitioners and Students of Medicine. With an Introductory Section on Histology. By E. O. SHAKESPEARE, M. D., Ophthalmologist to the Philadelphia Hospital. Comprising 813 double-columned quarto pages, with 380 illustrations on 109 full page lithographic plates, many of which are in colors, and 241 engravings in the text. In six Sections, each in a portfolio. Section I. HISTOLOGY. Section II. BONES AND JOINTS. Section III. MUSCLES AND FASCIAE. Section IV. ARTERIES, VEINS AND LYMPHATICS. Section V. NERVOUS SYSTEM. Section VI. ORGANS OF SENSE, OF DIGESTION AND GENITO-URINARY ORGANS, EMBRYOLOGY, DEVELOPMENT, TERATOLOGY, SUPERFICIAL ANATOMY, POST-MORTEM EXAMINATIONS, AND GENERAL AND CLINICAL INDEXES. Price per Section, \$3.50; also bound in one volume, cloth, \$23.00; very handsome half Russia, raised bands and open back, \$25.00. *For sale by subscription only. Apply to the Publishers.*

It is to be considered a study of applied anatomy in its widest sense—a systematic presentation of such anatomical facts as can be applied to the practice of medicine as well as of surgery. Our author is concise, accurate and practical in his statements, and succeeds admirably in infusing an interest into the study of what is generally considered a dry subject. The department of Histology is treated in a masterly manner, and the ground is travelled over by one thoroughly familiar with it. The illustrations are made with great

care, and are simply superb. There is as much of practical application of anatomical points to the every-day wants of the medical clinician as to those of the operating surgeon. In fact, few general practitioners will read the work without a feeling of surprised gratification that so many points, concerning which they may never have thought before are so well presented for their consideration. It is a work which is destined to be the best of its kind in any language.—*Medical Record*, Nov. 25, 1882.

CLARKE, W. B., F.R.C.S. & LOCKWOOD, C. B., F.R.C.S.*Demonstrators of Anatomy at St. Bartholomew's Hospital Medical School, London.*

The Dissector's Manual. In one pocket-size 12mo. volume of 396 pages, with 49 illustrations. Limp cloth, red edges, \$1.50. See *Students' Series of Manuals*, page 4.

Messrs. Clarke and Lockwood have written a book that can hardly be rivalled as a practical aid to the dissector. Their purpose, which is "how to describe the best way to display the anatomical structure," has been fully attained. They excel in a lucidity of demonstration and graphic terseness of expression, which only a long training and

intimate association with students could have given. With such a guide as this, accompanied by so attractive a commentary as Treves' *Surgical Applied Anatomy* (same series), no student could fail to be deeply and absorbingly interested in the study of anatomy.—*New Orleans Medical and Surgical Journal*, April, 1884.

TREVES, FREDERICK, F. R. C. S.,*Senior Demonstrator of Anatomy and Assistant Surgeon at the London Hospital.*

Surgical Applied Anatomy. In one pocket-size 12mo. volume of 540 pages, with 61 illustrations. Limp cloth, red edges, \$2.00. See *Students' Series of Manuals*, page 4.

He has produced a work which will command a larger circle of readers than the class for which it was written. This union of a thorough, practical acquaintance with these fundamental branches, quickened by daily use as a teacher and practitioner, has enabled our author to prepare a work which it would be a most difficult task to excel.—*The American Practitioner*, Feb. 1884.

This number of the "Manuals for Students" is most excellent, giving just such practical knowledge as will be required for application in relieving the injuries to which the living body is liable. The book is intended mainly for students, but it will also be of great use to practitioners. The illustrations are well executed and fully elucidate the text.—*Southern Practitioner*, Feb., 1884.

BELLAMY, EDWARD, F. R. C. S.,*Senior Assistant-Surgeon to the Charing-Cross Hospital, London.*

The Student's Guide to Surgical Anatomy: Being a Description of the most Important Surgical Regions of the Human Body, and intended as an Introduction to operative Surgery. In one 12mo. volume of 300 pages, with 50 illustrations. Cloth, \$2.25.

WILSON, ERASMUS, F. R. S.

A System of Human Anatomy, General and Special. Edited by W. H. GOBRECHT, M. D., Professor of General and Surgical Anatomy in the Medical College of Ohio. In one large and handsome octavo volume of 616 pages, with 397 illustrations. Cloth, \$4.00; leather, \$5.00.

CLELAND, JOHN, M. D., F. R. S.,*Professor of Anatomy and Physiology in Queen's College, Galway.*

A Directory for the Dissection of the Human Body. In one 12mo. volume of 178 pages. Cloth, \$1.25.

HARTSHORNE'S HANDBOOK OF ANATOMY AND PHYSIOLOGY. Second edition, revised. In one royal 12mo. volume of 310 pages, with 220 woodcuts. Cloth, \$1.75.

HORNER'S SPECIAL ANATOMY AND HISTOLOGY. Eighth edition, extensively revised and modified. In two octavo volumes of 1007 pages, with 320 woodcuts. Cloth, \$6.00.

DRAPER, JOHN C., M. D., LL. D.,*Professor of Chemistry in the University of the City of New York.***Medical Physics.** A Text-book for Students and Practitioners of Medicine. In one octavo volume of 734 pages, with 376 woodcuts, mostly original. Cloth, \$4.**FROM THE PREFACE.**

The fact that a knowledge of Physics is indispensable to a thorough understanding of Medicine has not been as fully realized in this country as in Europe, where the admirable works of Desplats and Gariel, of Robertson and of numerous German writers constitute a branch of educational literature to which we can show no parallel. A full appreciation of this the author trusts will be sufficient justification for placing in book form the substance of his lectures on this department of science, delivered during many years at the University of the City of New York.

Broadly speaking, this work aims to impart a knowledge of the relations existing between Physics and Medicine in their latest state of development, and to embody in the pursuit of this object whatever experience the author has gained during a long period of teaching this special branch of applied science.

This elegant and useful work bears ample testimony to the learning and good judgment of the author. He has fitted his work admirably to the exigencies of the situation by presenting the reader with brief, clear and simple statements of such propositions as he is by necessity required to master. The subject matter is well arranged, liberally illustrated and carefully indexed. That it will take rank at once among the text-books is certain, and it is to be hoped that it will find a place upon the shelf of the practical physician, where, as a book of reference, it will be found useful and agreeable.—*Louisville Medical News*, September 26, 1885.

Certainly we have no text-book as full as the excellent one he has prepared. It begins with a statement of the properties of matter and energy. After these the special departments of physics are

explained, acoustics, optics, heat, electricity and magnetism, closing with a section on electro-biology. The applications of all these to physiology and medicine are kept constantly in view. The text is amply illustrated and the many difficult points of the subject are brought forward with remarkable clearness and ability.—*Medical and Surgical Reporter*, July 18, 1885.

That this work will greatly facilitate the study of medical physics is apparent upon even a mere cursory examination. It is marked by that scientific accuracy which always characterizes Dr. Draper's writings. Its peculiar value lies in the fact that it is written from the standpoint of the medical man. Hence much is omitted that appears in a mere treatise on physical science, while much is inserted of peculiar value to the physician.—*Medical Record*, August 22, 1885.

ROBERTSON, J. MCGREGOR, M. A., M. B.,*Muirhead Demonstrator of Physiology, University of Glasgow.***Physiological Physics.** In one 12mo. volume of 537 pages, with 219 illustrations. Limp cloth, \$2.00. See *Students' Series of Manuals*, page 4.

The title of this work sufficiently explains the nature of its contents. It is designed as a manual for the student of medicine, an auxiliary to his text-book in physiology, and it would be particularly useful as a guide to his laboratory experi-

ments. It will be found of great value to the practitioner. It is a carefully prepared book of reference, concise and accurate, and as such we heartily recommend it.—*Journal of the American Medical Association*, Dec. 6, 1884.

DALTON, JOHN C., M. D.,*Professor Emeritus of Physiology in the College of Physicians and Surgeons, New York.***Doctrines of the Circulation of the Blood. A History of Physiological Opinion and Discovery in regard to the Circulation of the Blood.** In one handsome 12mo. volume of 293 pages. Cloth, \$2.

Dr. Dalton's work is the fruit of the deep research of a cultured mind, and to the busy practitioner it cannot fail to be a source of instruction. It will inspire him with a feeling of gratitude and admiration for those plodding workers of olden times, who laid the foundation of the magnificent temple of medical science as it now stands.—*New Orleans Medical and Surgical Journal*, Aug. 1885.

In the progress of physiological study no fact was of greater moment, none more completely

revolutionized the theories of teachers, than the discovery of the circulation of the blood. This explains the extraordinary interest it has to all medical historians. The volume before us is one of three or four which have been written within a few years by American physicians. It is in several respects the most complete. The volume, though small in size, is one of the most creditable contributions from an American pen to medical history that has appeared.—*Med. & Surg. Rep.*, Dec. 6, 1884.

BELL, F. JEFFREY, M. A.,*Professor of Comparative Anatomy at King's College, London.***Comparative Physiology and Anatomy.** In one 12mo. volume of 561 pages, with 229 illustrations. Limp cloth, \$2.00. See *Students' Series of Manuals*, page 4.

The manual is preeminently a student's book—clear and simple in language and arrangement. It is well and abundantly illustrated, and is readable and interesting. On the whole we consider

it the best work in existence in the English language to place in the hands of the medical student.—*Bristol Medico-Chirurgical Journal*, Mar., 1886.

ELLIS, GEORGE VENER,*Emeritus Professor of Anatomy in University College, London.***Demonstrations of Anatomy.** Being a Guide to the Knowledge of the Human Body by Dissection. From the eighth and revised London edition. In one very handsome octavo volume of 716 pages, with 249 illustrations. Cloth, \$4.25; leather, \$5.25.**ROBERTS, JOHN B., A. M., M. D.,***Prof. of Applied Anat. and Oper. Surg. in Phila. Polyclinic and Coll. for Graduates in Medicine.***The Compend of Anatomy.** For use in the dissecting-room and in preparing for examinations. In one 16mo. volume of 196 pages. Limp ' nts.

CHAPMAN, HENRY C., M. D.,*Professor of Institutes of Medicine and Medical Juris. in the Jefferson Med. Coll. of Philadelphia.***A Treatise on Human Physiology.** In one handsome octavo volume of 925 pages, with 605 fine engravings. Cloth, \$5.50; leather, \$6.50.

It represents very fully the existing state of physiology. The present work has a special value to the student and practitioner as devoted more to the practical application of well-known truths which the advance of science has given to the profession in this department, which may be considered the foundation of rational medicine.—*Buſſalo Medical and Surgical Journal*, Dec. 1887.

Matters which have a practical bearing on the practice of medicine are lucidly expressed; technical matters are given in minute detail; elaborate directions are stated for the guidance of students in the laboratory. In every respect the work fulfills its promise, whether as a complete treatise for the student or for the physician; for the former it is so complete that he need look no

further, and the latter will find entertainment and instruction in an admirable book of reference.—*North Carolina Medical Journal*, Nov. 1887.

The work certainly commends itself to both student and practitioner. What is most demanded by the progressive physician of to-day is an adaptation of physiology to practical therapeutics, and this work is a decided improvement in this respect over other works in the market. It will certainly take place among the most valuable text-books.—*Medical Age*, Nov. 25, 1887.

It is the production of an author delighted with his work, and able to inspire students with an enthusiasm akin to his own.—*American Practitioner and News*, Nov. 12, 1887.

DALTON, JOHN C., M. D.,*Professor of Physiology in the College of Physicians and Surgeons, New York, etc.***A Treatise on Human Physiology.** Designed for the use of Students and Practitioners of Medicine. Seventh edition, thoroughly revised and rewritten. In one very handsome octavo volume of 722 pages, with 252 beautiful engravings on wood. Cloth, \$5.00; leather, \$6.00; very handsome half Russia, raised bands, \$6.50.

From the first appearance of the book it has been a favorite, owing as well to the author's renown as an oral teacher as to the charm of simplicity with which, as a writer, he always succeeds in investing even intricate subjects. It must be gratifying to him to observe the frequency with which his work, written for students and practitioners, is quoted by other writers on physiology. This fact attests its value, and, in great measure, its originality. It now needs no such seal of approbation, however, for the thousands who have studied it in its various editions

have never been in any doubt as to its sterling worth.—*N. Y. Medical Journal*, Oct. 1882.

Professor Dalton's well-known and deservedly-appreciated work has long passed the stage at which it could be reviewed in the ordinary sense. The work is eminently one for the medical practitioner, since it treats most fully of those branches of physiology which have a direct bearing on the diagnosis and treatment of disease. The work is one which we can highly recommend to all our readers.—*Dublin Journal of Medical Science*, Feb. '83.

FOSTER, MICHAEL, M. D., F. R. S.,*Prelector in Physiology and Fellow of Trinity College, Cambridge, England.***Text-Book of Physiology.** New (fourth) American from the fifth and revised English edition, with notes and additions by E. T. REICHERT, M. D., Prof. of Physiology in Univ. of Penna. *Preparing.***A REVIEW OF THE FIFTH ENGLISH EDITION IS APPENDED.**

It is delightful to meet a book which deserves only unqualified praise. Such a book is now before us. It is in all respects an ideal text-book. With a complete, accurate and detailed knowledge of his subject, the author has succeeded in giving a thoroughly consecutive and philosophic account of the science. A student's attention is kept throughout fixed on the great and salient ques-

tions, and his energies are not frittered away and degenerated on petty and trivial details. Reviewing this volume as a whole we are justified in saying that it is the only thoroughly good text-book of physiology in the English language, and that it is probably the best text-book in ANY language.—*Edinburgh Medical Journal*, December 1888.

POWER, HENRY, M. B., F. R. C. S.,*Examiner in Physiology, Royal College of Surgeons of England.***Human Physiology.** Second edition. In one handsome pocket-size 12mo. volume of 396 pp., with 47 illustrations. Cloth, \$1.50. See *Students' Series of Manuals*, p. 4.**SIMON, W., Ph. D., M. D.,***Professor of Chemistry and Toxicology in the College of Physicians and Surgeons, Baltimore, and Professor of Chemistry in the Maryland College of Pharmacy.***Manual of Chemistry.** A Guide to Lectures and Laboratory work for Beginners in Chemistry. A Text-book, specially adapted for Students of Pharmacy and Medicine. New (second) edition. In one 8vo. vol. of 478 pp., with 44 woodcuts and 7 colored plates illustrating 56 of the most important chemical tests. *Just ready.* Cloth, \$3.25.**FROM THE PREFACE.**

It has been the aim of the Author to present a work on general chemistry which may be used to advantage as a text-book by beginners, and which, at the same time, covers the special needs of the medical and pharmaceutical student. While the general character of the second edition is the same as that of the first, many changes and numerous additions have been made with the view of rendering the work more complete and useful. For the special benefit of pharmaceutical and medical students all chemicals mentioned in the United States Pharmacopœia are included, and when of sufficient interest, are fully considered. Having frequently noticed the difficulty experienced by beginners in becoming familiar with the variously shaded colors of chemicals and their reactions, the Author decided to illustrate the work with a number of plates, presenting the colors of those most important.

Wöhler's Outlines of Organic Chemistry. Edited by FITTIG. Translated by IRA REMSEN, M. D., Ph. D. In one 12mo. volume of 550 pages. Cloth, \$3.**LEHMANN'S MANUAL OF CHEMICAL PHYSIOLOGY.** In one octavo volume of 327 pages, with 41 illustrations. Cloth, \$2.25.**CARPENTER'S HUMAN PHYSIOLOGY.** Edited by HENRY POWER. In one octavo volume.**CARPENTER'S PRIZE ESSAY ON THE USE AND ABUSE OF ALCOHOLIC LIQUORS IN HEALTH AND DISEASE.** With explanations of scientific words. Small 12mo. 178 pages. Cloth, 90 cents.**GALLOWAY'S QUANTITATIVE ANALYSIS.**

FRANKLAND, E. D. C. L., F.R.S., & JAPP, F. R., F.I.C.,*Professor of Chemistry in the Normal School of Science, London.**Assist. Prof. of Chemistry in the Normal School of Science, London.*

Inorganic Chemistry. In one handsome octavo volume of 677 pages with 51 woodcuts and 2 plates. Cloth, \$3.75; leather, \$4.75.

This work should supersede other works of its class in the medical colleges. It is certainly better adapted than any work upon chemistry, with which we are acquainted, to impart that clear and full knowledge of the science which students of medicine should have. Physicians who feel that their chemical knowledge is behind the times, would do well to devote some of their leisure time to the study of this work. The descriptions and demonstrations are made so plain that there is no difficulty in understanding them.—*Cincinnati Medical News*, January, 1886.

This excellent treatise will not fail to take its place as one of the very best on the subject of which it treats. We have been much pleased with the comprehensive and lucid manner in which the difficulties of chemical notation and nomenclature have been cleared up by the writers. It shows on every page that the problem of rendering the obscurities of this science easy of comprehension has long and successfully engaged the attention of the authors.—*Medical and Surgical Reporter*, October 31, 1885.

FOWNES, GEORGE, Ph. D.

A Manual of Elementary Chemistry; Theoretical and Practical. Embodying WATTS' Physical Inorganic Chemistry. New American, from the twelfth English edition. In one large royal 12mo. volume of 1061 pages, with 168 illustrations on wood and a colored plate. Cloth, \$2.75; leather, \$3.25.

Fownes' Chemistry has been a standard text-book upon chemistry for many years. Its merits are very fully known by chemists and physicians everywhere in this country and in England. As the science has advanced by the making of new discoveries, the work has been revised so as to keep it abreast of the times. It has steadily maintained its position as a text-book with medical students. In this work are treated fully: Heat, Light and Electricity, including Magnetism. The influence exerted by these forces in chemical action upon health and disease, etc., is of the most important kind, and should be familiar to every medical practitioner. We can commend the work as one of the very best text-books upon

chemistry extant.—*Cincinnati Medical News*, October, 1885.

Of all the works on chemistry intended for the use of medical students, *Fownes' Chemistry* is perhaps the most widely used. Its popularity is based upon its excellence. This last edition contains all of the material found in the previous, and it is also enriched by the addition of Watts' *Physical and Inorganic Chemistry*. All of the matter is brought to the present standpoint of chemical knowledge. We may safely predict for this work a continuance of the fame and favor it enjoys among medical students.—*New Orleans Medical and Surgical Journal*, March, 1886.

ATTFIELD, JOHN, Ph. D.,*Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain, etc.*

Chemistry, General, Medical and Pharmaceutical; Including the Chemistry of the U. S. Pharmacopeia. A Manual of the General Principles of the Science, and their Application to Medicine and Pharmacy. A new American, from the tenth English edition, specially revised by the Author for America. In one handsome royal 12mo. volume of 728 pages, with 87 illustrations. Cloth, \$2.50; leather, \$3.00.

It is a book on which too much praise cannot be bestowed. As a text-book for medical schools it is unsurpassable in the present state of chemical science, and having been prepared with a special view towards medicine and pharmacy, it is alike indispensable to all persons engaged in those departments of science. It includes the whole chemistry of the last Pharmacopeia.—*Pacific Medical and Surgical Journal*, Jan. 1884.

A text-book which passes through ten editions

in sixteen years must have good qualities. It seems desirable to point out that feature of the book which, in all probability, has made it so popular. There can be little doubt that it is its thoroughly practical character, the expression being used in its best sense. The author understands what the student ought to learn, and is able to put himself in the student's place and to appreciate his state of mind.—*American Chemical Journal*, April, 1884.

BLOXAM, CHARLES L.,*Professor of Chemistry in King's College, London.*

Chemistry, Inorganic and Organic. New American from the fifth London edition, thoroughly revised and much improved. In one very handsome octavo volume of 727 pages, with 292 illustrations. Cloth, \$2.00; leather, \$3.00.

Comment from us on this standard work is almost superfluous. It differs widely in scope and aim from that of Attfield, and in its way is equally beyond criticism. It adopts the most direct methods in stating the principles, hypotheses and facts of the science. Its language is so terse and lucid, and its arrangement of matter so logical in sequence that the student never has occasion to complain that chemistry is a hard study. Much attention is paid to experimental illustrations of chemical principles and phenomena, and the mode of conducting these experiments. The book maintains the position it has always held as one of

the best manuals of general chemistry in the English language.—*Detroit Lancet*, Feb. 1884.

We know of no treatise on chemistry which contains so much practical information in the same number of pages. The book can be readily adapted not only to the needs of those who desire a tolerably complete course of chemistry, but also to the needs of those who desire only a general knowledge of the subject. We take pleasure in recommending this work both as a satisfactory text-book, and as a useful book of reference.—*Boston Medical and Surgical Journal*, June 19, 1884.

GREENE, WILLIAM H., M. D.,*Demonstrator of Chemistry in the Medical Department of the University of Pennsylvania.*

A Manual of Medical Chemistry. For the use of Students. Based upon Bowman's Medical Chemistry. In one 12mo. volume of 310 pages, with 74 illus. Cloth, \$1.75.

It is a concise manual of three hundred pages, giving an excellent summary of the best methods of analyzing the liquids and solids of the body, both for the estimation of their normal constituents and

the recognition of compounds due to pathological conditions. The detection of poisons is treated with sufficient fulness for the purpose of the student or practitioner.—*Boston Jl. of Chem.* June, 1884.

REMSEN, IRA, M. D., Ph. D.,*Professor of Chemistry in the Johns Hopkins University, Baltimore.***Principles of Theoretical Chemistry**, with special reference to the Constitution of Chemical Compounds. New (third) and thoroughly revised edition. In one handsome royal 12mo. volume of 316 pages. Cloth, \$2.00. *Just ready.*

This work of Dr. Remsen is the very text-book needed, and the medical student who has it at his fingers' ends, so to speak, can, if he chooses, make himself familiar with any branch of chemistry which he may desire to pursue. It would be difficult indeed to find a more lucid, full, and at the same time compact explication of the philosophy of chemistry, than the book before us, and we recommend it to the careful and impartial

examination of college faculties as the text-book of chemical instruction.—*St. Louis Medical and Surgical Journal*, January, 1888.

It is a healthful sign when we see a demand for a third edition of such a book as this. This edition is larger than the last by about seventy-five pages, and much of it has been rewritten, thus bringing it fully abreast of the latest investigations.—*N. Y. Medical Journal*, Dec. 31, 1887.

CHARLES, T. CRANSTOUN, M. D., F. C. S., M. S.,*Formerly Asst. Prof. and Demonstr. of Chemistry and Chemical Physics, Queen's College, Belfast.***The Elements of Physiological and Pathological Chemistry.** A Handbook for Medical Students and Practitioners. Containing a general account of Nutrition, Foods and Digestion, and the Chemistry of the Tissues, Organs, Secretions and Excretions of the Body in Health and in Disease. Together with the methods for preparing or separating their chief constituents, as also for their examination in detail, and an outline syllabus of a practical course of instruction for students. In one handsome octavo volume of 463 pages, with 38 woodcuts and 1 colored plate. Cloth, \$3.50.

Dr. Charles is fully impressed with the importance and practical reach of his subject, and he has treated it in a competent and instructive manner. We cannot recommend a better book than the present. In fact, it fills a gap in medical textbooks, and that is a thing which can rarely be said

nowadays. Dr. Charles has devoted much space to the elucidation of urinary mysteries. He does this with much detail, and yet in a practical and intelligible manner. In fact, the author has filled his book with many practical hints.—*Medical Record*, December 20, 1884.

HOFFMANN, F., A.M., Ph.D., & POWER F.B., Ph.D.,*Public Analyst to the State of New York. Prof. of Anal. Chem. in the Phil. Coll. of Pharmacy.***A Manual of Chemical Analysis**, as applied to the Examination of Medicinal Chemicals and their Preparations. Being a Guide for the Determination of their Identity and Quality, and for the Detection of Impurities and Adulterations. For the use of Pharmacists, Physicians, Druggists and Manufacturing Chemists, and Pharmaceutical and Medical Students. Third edition, entirely rewritten and much enlarged. In one very handsome octavo volume of 621 pages, with 179 illustrations. Cloth, \$4.25.

We congratulate the author on the appearance of the third edition of this work, published for the first time in this country also. It is admirable and the information it undertakes to supply is both extensive and trustworthy. The selection of processes for determining the purity of the substances of which it treats is excellent and the descrip-

tion of them singularly explicit. Moreover, it is exceptionally free from typographical errors. We have no hesitation in recommending it to those who are engaged either in the manufacture or the testing of medicinal chemicals.—*London Pharmaceutical Journal and Transactions*, 1888.

CLOWES, FRANK, D. Sc., London,*Senior Science-Master at the High School, Newcastle-under-Lyme, etc.***An Elementary Treatise on Practical Chemistry and Qualitative Inorganic Analysis.** Specially adapted for use in the Laboratories of Schools and Colleges and by Beginners. Third American from the fourth and revised English edition. In one very handsome royal 12mo. volume of 387 pages, with 55 illustrations. Cloth, \$2.50.

This work has long been a favorite with laboratory instructors on account of its systematic plan, carrying the student step by step from the simplest questions of chemical analysis, to the more recondite problems. Features quite as commendable are the regularity and system demanded of the

student in the performance of each analysis. These characteristics are preserved in the present edition, which we can heartily recommend as a satisfactory guide for the student of inorganic chemical analysis.—*New York Medical Journal*, Oct. 9, 1888.

RALFE, CHARLES H., M. D., F. R. C. P.,*Assistant Physician at the London Hospital.***Clinical Chemistry.** In one pocket-size 12mo. volume of 314 pages, with 16 illustrations. Limp cloth, red edges, \$1.50.

This is one of the most instructive little works that we have met with in a long time. The author is a physician and physiologist, as well as a chemist, consequently the book is unqualifiedly practical, telling the physician just what he ought to know, of the applications of chemistry in medi-

student in the performance of each analysis. These characteristics are preserved in the present edition, which we can heartily recommend as a satisfactory guide for the student of inorganic chemical analysis.—*New York Medical Journal*, Oct. 9, 1888.

See *Students' Series of Manuals*, page 4. Dr. Ralfe is thoroughly acquainted with the latest contributions to his science, and it is quite refreshing to find the subject dealt with so clearly and simply, yet in such evident harmony with the modern scientific methods and spirit.—*Medical Record*, February 2, 1884.

CLASSEN, ALEXANDER,*Professor in the Royal Polytechnic School, Aix-la-Chapelle.***Elementary Quantitative Analysis.** Translated, with notes and additions, by EDGAR F. SMITH, Ph. D., Assistant Professor of Chemistry in the Towne Scientific School, University of Penna. In one 12mo. volume of 324 pages, with 36 illust. Cloth, \$2.00.

It is probably the best manual of an elementary nature extant, insomuch as its methods are the best. It teaches by examples, commencing with single determinations, followed by separations,

and then advancing to the analysis of minerals and such products as are met with in applied chemistry. It is an indispensable book for students in chemistry.—*Boston Journal of Chemistry*, Oct. 1878.

BRUNTON, T. LAUDER, M.D., D.Sc., F.R.S., F.R.C.P.,
Lecturer on *Materia Medica and Therapeutics* at St. Bartholomew's Hospital, London, etc.

A Text-book of Pharmacology, Therapeutics and Materia Medica;
Including the Pharmacy, the Physiological Action and the Therapeutical Uses of Drugs.
New (3d) edition. In one handsome octavo volume of 1305 pages, with 230 illustrations.
Cloth, \$5.50; leather, \$6.50.

The present edition has the same merits of fulness and clearness which its predecessors possessed. It has been revised so as to devote more attention to certain matters which have undergone rapid development within the last few years. It presents a very accurate view of the present state of knowledge in regard to its subject. A noticeable feature of this book is its very complete index of remedies, and a helpful index of diseases and the medicaments which may be used in treating them. —*Medical and Surgical Reporter*, Nov. 17, 1888.

Medical and Surgical Reporter, Nov. 11, 1888.

Nothing so original and so complete on the action of drugs on the body generally and on its various parts, has appeared during the life of the present generation. This is strong language, but it is the

truth. The great merit of this work is that the author has been able so well to coordinate facts into an intelligible and rational system of pharmacology, and henceforth no treatise on therapeutics will be considered complete which does not in some measure adopt this method. The busy physician will approach this book to learn something that will better fit him for his work, and on every page he will find something that will reward him for the time spent in its perusal. We commend this book as one which every physician should own and study. It is a work which if once owned will be likely to be read and consulted till the covers fall off from much use.—*Boston Medical and Surgical Journal*, Dec. 20, 1888.

MAISCH, JOHN M., Phar. D.,

Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy

A Manual of Organic Materia Medica; Being a Guide to Materia Medica of the Vegetable and Animal Kingdoms. For the use of Students, Druggists, Pharmacists and Physicians. New (3d) edition, thoroughly revised. In one handsome royal 12mo. volume of 523 pages with 257 illustrations. Cloth, \$3.

volume of 355 pages, with 257 illustrations. Prof. Maisch is one of the most distinguished pharmacists of this country. He and Prof. Stille are the authors of *The National Dispensatory*, which is not excelled by any work of its kind ever published. The learning and experience of the author, therefore, is a guarantee that his manual is well adapted for its purpose, viz: a text- and reference-book for students, pharmacists and phys-

Cloth, \$8.
sicians, containing the most recent and reliable information in regard to drugs.—*Cincinnati Medical News*, Nov. 1887.

We do not know of any work in the English language which covers the ground so well, and hence its popularity is deserved. Prof. Maisch is one of the acknowledged pharmaceutical educators of this country.—*Amer. Practitioner & News*, Aug. 18, '88.

BARTHOLOW, ROBERTS, A. M., M. D., LL. D.

Professor of Materia Medica and General Therapeutics in the Jefferson Med. Coll. of Philadelphia

New Remedies of Indigenous Source: Their Physiological Actions and Therapeutical Uses. In one octavo volume of about 300 pages. *Preparing.*

PARRISH, EDWARD,

Late Professor of the Theory and Practice of Pharmacy in the Philadelphia College of Pharmacy.

A Treatise on Pharmacy: designed as a Text-book for the Student, and as a Guide for the Physician and Pharmacist. With many Formulae and Prescriptions. Fifth edition, thoroughly revised, by THOMAS S. WIEGAND, Ph. G. In one handsome octavo volume of 1093 pages with 258 illustrations. Cloth \$5: leather \$6.

No thorough-going pharmacist will fail to possess himself of so useful a guide to practice, and no physician who properly estimates the value of an accurate knowledge of the remedial agents employed by him in daily practice, so far as their miscibility, compatibility and most effective methods of combination are concerned, can afford to leave this work out of the list of their works of reference. The country practitioner, who must always be in a measure his own pharmacist, will find it indispensable.—*Louisville Medical News*, March 29, 1884.

Each page bears evidence of the care bestowed upon it, and conveys valuable information from the rich store of the editor's experience. In fact, all that relates to practical pharmacy—apparatus, processes and dispensing—has been arranged and described with clearness in its various aspects, so as to afford aid and advice alike to the student and to the practical pharmacist. The work is judiciously illustrated with good woodcuts—*American Journal of Pharmacy*, January, 1884.

There is nothing to equal Parrish's *Pharmacy* in this or any other language.—*London Pharmaceutical Journal*.

upon the recently revised new PH

FRMANN, Dr. L.,

Professor of Physiology in the University of Zurich.
Experimental Pharmacology. A Handbook of Methods for Determining the Physiological Actions of Drugs. Translated, with the Author's permission, and with extensive additions, by ROBERT MEADE SMITH, M. D., Demonstrator of Physiology in the University of Pennsylvania. In one handsome 12mo. volume of 199 pages, with 32 illustrations. Cloth, \$1.50.

BRUCE J. MITCHELL, M.D., F.R.C.P.

CE, J. MITCHELL, M. D., F. R. C. P.,
Physician and Lecturer on Maternal Medicine and Therapeutics at Charing Cross Hospital, London.

Physician and Lecturer on Materia Medica and Therapeutics at Charing Cross Hospital, London.
Materia Medica and Therapeutics. An Introduction to Rational Treatment. Fourth edition. In one pocket-size 12mo. volume of 591 pages. Limp cloth, \$1.50. See *Students' Series of Manuals*, page 4.

GRIFFITH, ROBERT EGLEFIELD, M.D.

GRIFFITH, ROBERT EGLESTON, M. D.
A Universal Formulary, containing the Methods of Preparing and Administering Official and other Medicines. The whole adapted to Physicians and Pharmacists. Third edition, thoroughly revised, with numerous additions, by JOHN M. MAISCH, Ph.D., Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy. In one octavo volume of 775 pages, with 38 illustrations. Cloth, \$4.50; leather, \$5.50.

STILLE, A., M. D., LL. D., & MAISCH, J. M., Phar. D.,*Professor Emeritus of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania.**Prof. of Mat. Med. and Botany in Philadelphia College of Pharmacy, Sec'y to the American Pharmaceutical Association.*

NEW (FOURTH) EDITION.

The National Dispensatory.

*CONTAINING THE NATURAL HISTORY, CHEMISTRY, PHARMACY, ACTIONS AND USES OF MEDICINES, INCLUDING THOSE RECOGNIZED IN THE PHARMACOPEIAS OF THE UNITED STATES, GREAT BRITAIN AND GERMANY, WITH NUMEROUS REFERENCES TO THE FRENCH CODEX.**Fourth edition revised, and covering the new British Pharmacopœia.*

In one magnificent imperial octavo volume of 1794 pages, with 311 elaborate engravings. Price in cloth, \$7.25; leather, raised bands, \$8.00; very handsome half Russia, raised bands and open back, \$9.00.

* * * This work will be furnished with Patent Ready Reference Thumb-letter Index for \$1.00 in addition to the price in any style of binding.

In this new edition of THE NATIONAL DISPENSATORY, all important changes in the recent British Pharmacopœia have been incorporated throughout the volume, while in the Addenda will be found, grouped in a convenient section of 24 pages, all therapeutical novelties which have been established in professional favor since the publication of the third edition two years ago. Detailed information is thus given of the following among the many drugs treated: Antipyrin, Cocaine Hydrochlorate, Cascara Sagrada, Fabiana, Franciscea, various new Glycerin, Gymnocladus, Hydroquinon, Hypnone, Iodol, Jacaranda, Lanolin, Menthol, Phormium, Sulphophenol, Thallin and Urethan. In this edition, as always before, THE NATIONAL DISPENSATORY may be said to be the representative of the most recent state of American, English, German and French Pharmacology, Therapeutics and Materia Medica.

It is with much pleasure that the fourth edition of this magnificent work is received. The authors and publishers have reason to feel proud of this, the most comprehensive, elaborate and accurate work of the kind ever printed in this country. It is no wonder that it has become the standard authority for both the medical and pharmaceutical profession, and that four editions have been required to supply the constant and increasing demand since its first appearance in 1879. The entire field has been gone over and the various articles revised in accordance with the latest developments regarding the attributes and therapeutical action of drugs. The remedies of recent

discovery have received due attention.—*Kansas City Medical Index*, Nov. 1887.

We think it a matter for congratulation that the profession of medicine and that of pharmacy have shown such appreciation of this great work as to call for four editions within the comparatively brief period of eight years. The matters with which it deals are of so practical a nature that neither the physician nor the pharmacist can do without the latest text-books on them, especially those that are so accurate and comprehensive as this one. The book is in every way creditable both to the authors and to the publishers.—*New York Medical Journal*, May 21, 1887.

EDES, ROBERT T., M. D.,*Jackson Professor of Clinical Medicine in Harvard University, Medical Department.*

A Text-Book of Therapeutics and Materia Medica. Intended for the Use of Students and Practitioners. In one octavo volume of 544 pages. Cloth, \$3.50; leather, \$4.50.

The treatise will be found to be concise and practical, bringing the subject down to the latest developments of therapeutics and pharmacology. The student and practitioner will find the book a valuable one for reference and study, the former being facilitated by a full and excellent index.—*St. Louis Medical and Surgical Journal*, Jan. 1888.

The present work seems destined to take a prominent place as a text-book on the subjects of which it treats. It possesses all the essentials which we expect in a book of its kind, such as conciseness, clearness, a judicious classification, and a reasonable degree of dogmatism. The style deserves the highest commendation for its dignity and purity of diction. The student and young practitioner need a safe guide in this branch of medi-

cine. Such they can find in the present author. All the newest drugs of promise are treated of. The clinical index at the end will be found very useful. We heartily commend the book and congratulate the author on having produced so good a one.—*N. Y. Medical Journal*, Feb. 18, 1888.

Dr. Edes' book represents better than any older book the practical therapeutics of the present day. The book is a thoroughly practical one. The classification of remedies has reference to their therapeutic action, and such a classification will always meet the approval of the student. The relative importance of different remedies is indicated by the space devoted to each, and by the use of larger type in the titles of the more important articles.—*Pharmaceutical Era*, Jan. 1888.

FARQUHARSON, ROBERT, M. D.,*Lecturer on Materia Medica at St. Mary's Hospital Medical School.*

A Guide to Therapeutics and Materia Medica. New American edition, specially revised by the Author. Enlarged and adapted to the U. S. Pharmacopœia. In one handsome 12mo. volume of about 550 pages. *Preparing.*

STILLE, ALFRED, M. D., LL. D.,*Professor of Theory and Practice of Med. and of Clinical Med. in the Univ. of Penna.*

Therapeutics and Materia Medica. A Systematic Treatise on the Action and Uses of Medicinal Agents, including their Description and History. Fourth edition, revised and enlarged. In two large and handsome octavo volumes, containing 1936 pages. Cloth, \$10.00; leather, \$12.00; very handsome half Russia, raised bands, \$13.00.

PAYNE, JOSEPH F., M. D., F. R. C. P.,

Member of the Pathological Society, Senior Assistant Physician and Lecturer on Pathological Anatomy, St. Thomas' Hospital, London.

A Manual of General Pathology. Designed as an Introduction to the Practice of Medicine. In one handsome octavo volume of 524 pages, with 152 illustrations and a colored plate. *Just ready.* Cloth, \$3.50.

The author of this book is one whose researches in pathology and physiology have made his name a familiar one. He has occupied some of the most important and honorable positions in the world of English medicine, and all that comes from his pen is entitled to the respect that such positions carry with them. Knowing, as a teacher and examiner, the exact needs of medical students, he has in the work before us prepared for their especial use what we do not hesitate to say is the best introduction to general pathology that we have yet examined. He has given his work a coherence, and has led his readers along in a connected way to a

clear understanding of much that would otherwise be confusing. A departure which our author has taken is the greater attention paid to the causation of disease, and more especially to the etiological factors in those diseases now with reasonable certainty ascribed to pathogenetic microbes. In this department he has been very full and explicit, not only in a descriptive manner, but in the technique of investigation. The Appendix, giving methods of research, is alone worth the price of the book, several times over, to every student of pathology.—*St. Louis Medical and Surgical Journal*, Jan. 1889.

COATS, JOSEPH, M. D., F. F. P. S.,

Pathologist to the Glasgow Western Infirmary.

A Treatise on Pathology. In one very handsome octavo volume of 829 pages, with 339 beautiful illustrations. Cloth, \$5.50; leather, \$6.50.

The work before us treats the subject of Pathology more extensively than it is usually treated in similar works. Medical students as well as physicians, who desire a work for study or reference, that treats the subjects in the various departments in a very thorough manner, but without prolixity, will certainly give this one the preference to any with which we are acquainted. It sets

forth the most recent discoveries, exhibits, in an interesting manner, the changes from a normal condition effected in structures by disease, and points out the characteristics of various morbid agencies, so that they can be easily recognized. But, not limited to morbid anatomy, it explains fully how the functions of organs are disturbed by abnormal conditions.—*Cincinnati Medical News*, Oct. 1883.

GREEN, T. HENRY, M. D.,

Lecturer on Pathology and Morbid Anatomy at Charing-Cross Hospital Medical School, London.

Pathology and Morbid Anatomy. New (sixth) American from the seventh revised and enlarged English edition. In one very handsome octavo volume of about 500 pages, with about 150 fine engravings. *Preparing.*

WOODHEAD, G. SIMS, M. D., F. R. C. P. E.,

Demonstrator of Pathology in the University of Edinburgh.

Practical Pathology. A Manual for Students and Practitioners. In one beautiful octavo volume of 497 pages, with 136 exquisitely colored illustrations. Cloth, \$6.00.

It forms a real guide for the student and practitioner who is thoroughly in earnest in his endeavor to see for himself and do for himself. To the laboratory student it will be a helpful companion, and all those who may wish to familiarize themselves with modern methods of examining morbid tissues are strongly urged to provide themselves with this manual. The numerous

drawings are not fancied pictures, or merely schematic diagrams, but they represent faithfully the actual images seen under the microscope. The author merits all praise for having produced a valuable work.—*Medical Record*, May 31, 1884.

Every point is explained with perfect satisfaction, so that the merest tyro may understand.—*Physician and Surgeon*, December, 1883.

SCHÄFER, EDWARD A., F. R. S.,

Assistant Professor of Physiology in University College, London.

The Essentials of Histology. In one octavo volume of 246 pages, with 281 illustrations. Cloth, \$2.25.

This admirable work was greatly needed. To those who are familiar with the author's former "Course of Practical Histology," the book needs no recommendation. It has been written with the object of supplying the student with directions for the microscopical examination of the tissues, which are given in a clear and understandable way. Although especially adapted for laboratory work, at the same time it is intended to serve as

an elementary text-book of histology, comprising all the essential facts of the science, but omitting unimportant details. The author has recommended only those methods upon which long experience has proved that full dependence can be placed. The strict observance of this plan permits of no doubt, and makes the work eminently satisfactory.—*The Physician and Surgeon*, July, 1887.

KLEIN, E., M. D., F. R. S.,

Joint Lecturer on General Anat. and Phys. in the Med. School of St. Bartholomew's Hosp., London.

Elements of Histology. Third edition. In one pocket-size 12mo. volume of 360 pages, with 181 illus. Limp cloth, \$1.50.

This little volume, originally intended by its able author as a manual for medical students, contains much valuable information, systematically arranged, that will be acceptable to the general practitioner. It gives a graphic and lucid description of every tissue and organ in the hu-

man body; and, while small in size, it is full to overflowing with important facts in regard to these multiform and complex structures. We know of no book of its size that will prove of greater value to medical students and practitioners of medicine.—*The Southern Practitioner* Nov. 1883.

PEPPER, A. J., M. B., M. S., F. R. C. S.,

Surgeon and Lecturer at St. Mary's Hospital, London.

Surgical Pathology. In one pocket-size 12mo. volume of 511 pages, with 81 illustrations. Limp cloth, red edges, \$2.00. See *Students' Series of Manuals*, page 4.

It embodies a great deal of matter, extending over the whole field of surgical pathology. Its form is practical, its language is clear, and the information set forth is well-arranged, well-indexed and well-illustrated. The student will find in it nothing

that is unnecessary. The list of subjects covers the whole range of surgery. The book supplies a very manifest want and should meet with success.—*New York Medical Journal*, May 31, 1884.

FLINT, AUSTIN, M. D., LL. D.*Prof. of the Principles and Practice of Med. and of Clin. Med. in Bellevue Hospital Medical College, N. Y.*

A Treatise on the Principles and Practice of Medicine. Designed for the use of Students and Practitioners of Medicine. New (sixth) edition, thoroughly revised and rewritten by the Author, assisted by WILLIAM H. WELCH, M. D., Professor of Pathology, Johns Hopkins University, Baltimore, and AUSTIN FLINT, JR., M. D., LL. D., Professor of Physiology, Bellevue Hospital Medical College, N. Y. In one very handsome octavo volume of 1160 pages, with illustrations. Cloth, \$5.50; leather, \$6.50; very handsome half Russia, raised bands, \$7.00.

A new edition of a work of such established reputation as Flint's Medicine but few words to commend it to notice. It may in truth be said to embody the fruit of his labors in clinical medicine, ripened by the experience of a long life devoted to its pursuit. America may well be proud of having produced a man whose indefatigable industry and gifts of genius have done so much to advance medicine; and all English-reading students must be grateful for the work which he has left behind him. It has few equals, either in point of literary excellence, or of scientific learning, and no one can study its pages without being struck by the lucidity and accuracy which characterize them. It is qualities such as these which render it so valuable for its purpose, and give it a foremost place among the text-books of this generation.—*The London Lancet*, March 12, 1887.

No text-book on the principles and practice of medicine has ever met in this country with such

general approval by medical students and practitioners as the work of Professor Flint. In all the medical colleges of the United States it is the favorite work upon Practice; and, as we have stated before in alluding to it, there is no other medical work that can be so generally found in the libraries of physicians. In every state and territory of this vast country the book that will be most likely to be found in the office of a medical man, whether in city, town, village, or at some cross-roads, is Flint's *Practice*. We make this statement to a considerable extent from personal observation, and it is the testimony also of others. An examination shows that very considerable changes have been made in the sixth edition. The work may undoubtedly be regarded as fairly representing the present state of the science of medicine, and as reflecting the views of those who exemplify in their practice the present stage of progress of medical art.—*Cincinnati Medical News*, Oct. 1886.

HARTSHORNE, HENRY, M. D., LL. D.,*Lately Professor of Hygiene in the University of Pennsylvania.*

Essentials of the Principles and Practice of Medicine. A Handbook for Students and Practitioners. Fifth edition, thoroughly revised and rewritten. In one royal 12mo. volume of 669 pages, with 144 illustrations. Cloth, \$2.75; half bound, \$3.00.

Within the compass of 600 pages it treats of the history of medicine, general pathology, general symptomatology, and physical diagnosis (including laryngoscope, ophthalmoscope, etc.), general therapeutics, nosology, and special pathology and practice. There is a wonderful amount of information contained in this work, and it is one of the best of its kind that we have seen.—*Glasgow Medical Journal*, Nov. 1882.

An indispensable book. No work ever exhibited a better average of actual practical treatment than

this one; and probably not one writer in our day had a better opportunity than Dr. Hartshorne for condensing all the views of eminent practitioners into a 12mo. The numerous illustrations will be very useful to students especially. These essentials, as the name suggests, are not intended to supersede the text-books of Flint and Bartholow, but they are the most valuable in affording the means to see at a glance the whole literature of any disease, and the most valuable treatment.—*Chicago Medical Journal and Examiner*, April, 1882.

BRISTOWE, JOHN SYER, M. D., F. R. C. P.,*Physician and Joint Lecturer on Medicine at St. Thomas' Hospital, London.*

A Treatise on the Practice of Medicine. Second American edition, revised by the Author. Edited, with additions, by JAMES H. HUTCHINSON, M.D., physician to the Pennsylvania Hospital. In one handsome octavo volume of 1085 pages, with illustrations. Cloth, \$5.00; leather, \$6.00.

The book is a model of conciseness, and combines, as successfully as one could conceive it to be possible, an encyclopedic character with the smallest dimensions. It differs from other admirable text-books in the completeness with which it covers the whole field of medicine.—*Michigan Medical News*, May 10, 1880.

His accuracy in the portraiture of disease, his care in stating subtle points of diagnosis, and the faithfully given pathology of abnormal processes have seldom been surpassed. He embraces many diseases not usually considered to belong to theory

and practice, as skin diseases, syphilis and insanity, but they will not be objected to by readers, as he has studied them conscientiously, and drawn from the life.—*Medical and Surgical Reporter*, December 20, 1879.

The reader will find every conceivable subject connected with the practice of medicine ably presented, in a style at once clear, interesting and concise. The additions made by Dr. Hutchinson are appropriate and practical, and greatly add to its usefulness to American readers.—*Buffalo Medical and Surgical Journal*, March, 1880.

WATSON, SIR THOMAS, M. D.,*Late Physician in Ordinary to the Queen.*

Lectures on the Principles and Practice of Physic. A new American from the fifth English edition. Edited, with additions, and 190 illustrations, by HENRY HARTSHORNE, A. M., M. D., late Professor of Hygiene in the University of Pennsylvania. In two large octavo volumes of 1840 pages. Cloth, \$9.00; leather, \$11.00.

LECTURES ON THE STUDY OF FEVER. By A. HUDSON, M. D., M. R. I. A. In one octavo volume of 308 pages. Cloth, \$2.50.

A TREATISE ON FEVER. By ROBERT D. LYONS, K. C. C. In one 8vo. vol. of 354 pp. Cloth, \$2.25.

LA ROCHE ON YELLOW FEVER, considered in its Historical, Pathological, Etiological and Therapeutical Relations. In two large and handsome octavo volumes of 1468 pp. Cloth, \$7.00.

A CENTURY OF AMERICAN MEDICINE, 1776—1876. By Drs. E. H. CLARKE, H. J. BIGELOW, S. D. GROSS, T. G. THOMAS, and J. S. BILLINGS. In one 12mo. volume of 370 pages.

For Sale by Subscription Only.

A System of Practical Medicine.

BY AMERICAN AUTHORS.

EDITED BY WILLIAM PEPPER, M. D., LL. D.,

PROVOST AND PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE AND OF
CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA,

Assisted by LOUIS STARR, M. D., Clinical Professor of the Diseases of Children in the
Hospital of the University of Pennsylvania.

*The complete work, in five volumes, containing 5573 pages, with 198 illustrations, is now ready.
Price per volume, cloth, \$5; leather, \$6; half Russia, raised bands and open back, \$7.*

In this great work American medicine is for the first time reflected by its worthiest teachers, and presented in the full development of the practical utility which is its pre-eminent characteristic. The most able men—from the East and the West, from the North and the South, from all the prominent centres of education, and from all the hospitals which afford special opportunities for study and practice—have united in generous rivalry to bring together this vast aggregate of specialized experience.

The distinguished editor has so apportioned the work that to each author has been assigned the subject which he is peculiarly fitted to discuss, and in which his views will be accepted as the latest expression of scientific and practical knowledge. The practitioner will therefore find these volumes a complete, authoritative and unfailing work of reference, to which he may at all times turn with full certainty of finding what he needs in its most recent aspect, whether he seeks information on the general principles of medicine, or minute guidance in the treatment of special disease. So wide is the scope of the work that, with the exception of midwifery and matters strictly surgical, it embraces the whole domain of medicine, including the departments for which the physician is accustomed to rely on special treatises, such as diseases of women and children, of the genito-urinary organs, of the skin, of the nerves, hygiene and sanitary science, and medical ophthalmology and otology. Moreover, authors have inserted the formulas which they have found most efficient in the treatment of the various affections. It may thus be truly regarded as a **COMPLETE LIBRARY OF PRACTICAL MEDICINE**, and the general practitioner possessing it may feel secure that he will require little else in the daily round of professional duties.

In spite of every effort to condense the vast amount of practical information furnished, it has been impossible to present it in less than 5 large octavo volumes, containing about 5600 beautifully printed pages, and embodying the matter of about 15 ordinary octavos. Illustrations are introduced wherever requisite to elucidate the text.

A detailed prospectus will be sent to any address on application to the publishers.

These two volumes bring this admirable work to a close, and fully sustain the high standard reached by the earlier volumes; we have only therefore to echo the eulogium pronounced upon them. We would warmly congratulate the editor and his collaborators at the conclusion of their laborious task on the admirable manner in which, from first to last, they have performed their several duties. They have succeeded in producing a work which will long remain a standard work of reference, to which practitioners will look for guidance, and authors will resort to for facts. From a literary point of view, the work is without any serious blemish, and in respect of production, it has the beautiful finish that Americans always give their works.—*Edinburgh Medical Journal*, Jan. 1887.

* * The greatest distinctively American work on the practice of medicine, and, indeed, the superlative adjective would not be inappropriate were even all other productions placed in comparison. An examination of the five volumes is sufficient to convince one of the magnitude of the enterprise, and of the success which has attended its fulfilment.—*The Medical Age*, July 26, 1886.

This huge volume forms a fitting close to the great system of medicine which in so short a time has won so high a place in medical literature, and has done such credit to the profession in this country. Among the twenty-three contributors are the names of the leading neurologists in America, and most of the work in the volume is of the highest order.—*Boston Medical and Surgical Journal*, July 21, 1887.

We consider it one of the grandest works on Practical Medicine in the English language. It is a work of which the profession of this country can feel proud. Written exclusively by American

physicians who are acquainted with all the varieties of climate in the United States, the character of the soil, the manners and customs of the people, etc., it is peculiarly adapted to the wants of American practitioners of medicine, and it seems to us that every one of them would desire to have it. It has been truly called "Complete Library of Practical Medicine," and the general practitioner will require little else in his round of professional duties.—*Cincinnati Medical News*, March, 1886.

Each of the volumes is provided with a most copious index, and the work altogether promises to be one which will add much to the medical literature of the present century, and reflect great credit upon the scholarship and practical acumen of its authors.—*The London Lancet*, Oct. 3, 1885.

The feeling of proud satisfaction with which the American profession sees this, its representative system of practical medicine issued to the medical world, is fully justified by the character of the work. The entire caste of the system is in keeping with the best thoughts of the leaders and followers of our home school of medicine, and the combination of the scientific study of disease and the practical application of exact and experimental knowledge to the treatment of human maladies, makes every one of us share in the pride that has welcomed Dr. Pepper's labors. Sheared of the prolixity that wearies the readers of the German school, the articles glean these same fields for all that is valuable. It is the outcome of American brains, and is marked throughout by much of the sturdy independence of thought and originality that is a national characteristic. Yet nowhere is there lack of study of the most advanced views of the day.—*North Carolina Medical Journal*, Sept. 1886.

FOTHERGILL, J. M., M. D., EDIN., M. R. C. P., LOND.,
Physician to the City of London Hospital for Diseases of the Chest.

The Practitioner's Handbook of Treatment; Or, The Principles of Therapeutics. New (third) edition. In one 8vo. vol. of 661 pages. Cloth, \$3.75; leather, \$4.75.

To have a description of the normal physiological processes of an organ and of the methods of treatment of its morbid conditions brought together in a single chapter, and the relations between the two clearly stated, cannot fail to prove a great convenience to many thoughtful but busy physicians. The practical value of the volume is greatly increased by the introduction of many prescriptions. That the profession appreciates that the author has undertaken an important work and has accomplished it is shown by the demand for this third edition.—*N. Y. Med. Jour.*, June 11, '87.

This is a wonderful book. If there be such a thing as "medicine made easy," this is the work to accomplish this result.—*Va. Med. Month.*, June, '87.

It is an excellent, practical work on therapeutics, well arranged and clearly expressed, useful to the student and young practitioner, perhaps even to the old.—*Dublin Journal of Medical Science*, March, 1888.

We do not know a more readable, practical and useful work on the treatment of disease than the one we have now before us.—*Pacific Medical and Surgical Journal*, October, 1887.

VAUGHAN, VICTOR C., PH. D., M. D.,

Prof. of Phys. and Path. Chem. and Assoc. Prof. of Therap. and Mat. Med. in the Univ. of Mich.

and NOVY, FREDERICK G., M. D.,

Instructor in Hygiene and Phys. Chem. in the Univ. of Mich.

Ptomaines and Leucomaines, or Putrefactive and Physiological Alkaloids. In one handsome 12mo. volume of 311 pages. Just ready. Cloth, \$1.75.

This book is what has been wanted for some years by the medical profession. The subject of ptomaines and leucomaines, so far as their disease-producing relations are concerned, has been under special study scarcely more than a decade, but within that period facts have been discovered upon which theories of permanent standing have been built, until now the practitioner is far behind the times if he does not appreciate the importance of ptomaines. This is the first attempt made to collect into book form the results of

observers and experimenters on micro-organisms, and to trace the relationship of cause and effect of the putrefactive alkaloids. We congratulate the authors upon the successful presentation of the current views on the subject in such manner as to make them easily comprehensible, while to the practitioner, after he has carefully read the book, it will serve, also, as a frequent reference work, because of the technical information it gives. *Va. Medical Monthly*, Sept. 1888.

REYNOLDS, J. RUSSELL, M. D.,

Professor of the Principles and Practice of Medicine in University College, London.

A System of Medicine. With notes and additions by HENRY HARTSHORNE, A. M., M. D., late Professor of Hygiene in the University of Pennsylvania. In three large and handsome octavo volumes, containing 3056 double-columned pages, with 317 illustrations. Price per volume, cloth, \$5.00; sheep, \$6.00; very handsome half Russia, raised bands, \$6.50. Per set, cloth, \$15; leather, \$18; half Russia, \$19.50. Sold only by subscription.

STILLE, ALFRED, M. D., LL. D.,

Professor Emeritus of the Theory and Practice of Med. and of Clinical Med. in the Univ. of Penna.

Cholera: Its Origin, History, Causation, Symptoms, Lesions, Prevention and Treatment. In one handsome 12mo. volume of 163 pages, with a chart. Cloth, \$1.25.

FINLAYSON, JAMES, M. D., Editor,

Physician and Lecturer on Clinical Medicine in the Glasgow Western Infirmary, etc.

Clinical Manual for the Study of Medical Cases. With Chapters by Prof. Gairdner on the Physiognomy of Disease; Prof. Stephenson on Diseases of the Female Organs; Dr. Robertson on Insanity; Dr. Gemmill on Physical Diagnosis; Dr. Coats on Laryngoscopy and Post-Mortem Examinations, and by the Editor on Case-taking, Family History and Symptoms of Disorder in the Various Systems. New edition. In one 12mo. volume of 682 pages, with 158 illustrations. Cloth, \$2.50.

This manual is one of the most complete and perfect of its kind. It goes thoroughly into the question of diagnosis from every possible point. It must lead to a thoroughness of observation, an examination in detail of every scientific appliance, and a study of means to the end which cannot fail in laying an excellent foundation for the student for future success as an able diagnostician.—*Medical Record*, August 13, 1887.

FENWICK, SAMUEL, M. D.,

Assistant Physician to the London Hospital.

The Student's Guide to Medical Diagnosis. From the third revised and enlarged English edition. In one very handsome royal 12mo. volume of 328 pages, with 87 illustrations on wood. Cloth, \$2.25.

HABERSHON, S. O., M. D.,

Senior Physician to and late Lect. on Principles and Practice of Med. at Guy's Hospital, London.

On the Diseases of the Abdomen; Comprising those of the Stomach, and other parts of the Alimentary Canal, Oesophagus, Caecum, Intestines and Peritoneum. Second American from third enlarged and revised English edition. In one handsome octavo volume of 554 pages, with illustrations. Cloth, \$3.50.

TANNER, THOMAS HAWKES, M. D.,

A Manual of Clinical Medicine and Physical Diagnosis. Third American from the second London edition. Revised and enlarged by TILBURY FOX, M. D. In one small 12mo. volume of 362 pages, with illustrations. Cloth, \$1.50.

BARTHOLLOW, ROBERTS, A. M., M. D., LL. D.,*Prof. of Materia Medica and General Therapeutics in the Jefferson Med. Coll. of Phila., etc.*

Medical Electricity. A Practical Treatise on the Applications of Electricity to Medicine and Surgery. New (third) edition. In one very handsome octavo volume of 308 pages, with 110 illustrations. Cloth, \$2.50.

The fact that this work has reached its third edition in six years, and that it has been kept fully abreast with the increasing use and knowledge of electricity, demonstrates its claim to be considered a practical treatise of tried value to the profession. The matter added to the present edition embraces the most recent advances in electrical treatment. The illustrations are abundant and clear, and the work constitutes a full, clear and concise manual well adapted to the needs of both student and practitioner.—*The Medical News*, May 14, 1887.

This "practical treatise on the applications of electricity to medicine and surgery" has grown to be so important a work that every practitioner

should read it, especially when it is recalled what possibilities lie in the path of the further study of the therapeutics of electricity. Dr. Barthollow has here presented the profession with a concise work that, beginning with elementary descriptions and principles, gradually grows, page by page, into a magnificently practical treatise, describing operations in detail, and giving records of successes that prove electricity to be marvellous as a curative agent in many forms of disease. The doctor cannot now do better than to possess himself of Dr. Barthollow's treatise, just as it is.—*Virginia Medical Monthly*, June, 1887.

RICHARDSON, B. W., M. D., LL. D., F. R. S.,*Fellow of the Royal College of Physicians, London.*

Preventive Medicine. In one octavo volume of 729 pages. Cloth, \$4; leather, \$5; very handsome half Russia, raised bands, \$5.50.

Dr. Richardson has succeeded in producing a work which is elevated in conception, comprehensive in scope, scientific in character, systematic in arrangement, and which is written in a clear, concise and pleasant manner. He evinces the happy faculty of extracting the pith of what is known on the subject, and of presenting it in a most simple, intelligent and practical form. There is perhaps no similar work written for the general public that contains such a complete, reliable and instructive collection of data upon the diseases common to the race, their origins, causes, and the measures for their prevention. The descriptions of diseases are clear, chaste and scholarly; the discussion of

the question of disease is comprehensive, masterly and fully abreast with the latest and best knowledge on the subject, and the preventive measures advised are accurate, explicit and reliable.—*The American Journal of the Medical Sciences*, April, 1884.

This is a book that will surely find a place on the table of every progressive physician. To the medical profession, whose duty is quite as much to prevent as to cure disease, the book will be a boon.—*Boston Medical and Surgical Journal*, March 6, '84.

The treatise contains a vast amount of solid, valuable hygienic information.—*Medical and Surgical Reporter*, Feb. 23, 1884.

THE YEAR-BOOK OF TREATMENT FOR 1889.

A Comprehensive and Critical Review for Practitioners of Medicine. In one 12mo. volume of 349 pages, bound in limp cloth, \$1.25. Just ready.

** For special commutations with periodicals see page 2.

THE YEAR-BOOK OF TREATMENT FOR 1887.

Similar to above. 12mo., 341 pages. Limp cloth, \$1.25.

This is one of the most valuable books for its price which is published in this or any country. It contains a summary of the changes in medical practice, the new remedies introduced, and the experience with them and with others which have been longer in use, during the year 1887, made up from the reading and observation of a number of very capable men. The classification is according to diseases, so that one who con-

sults these pages can obtain in a few minutes an excellent idea of the present status of therapeutics in regard to any given ailment. The book also has a good index, by means of which the reader may ascertain the different diseases for which any particular drug has been used during the year past.—*Medical and Surgical Reporter*, April 14, 1888.

THE YEAR-BOOK OF TREATMENT FOR 1886.

Similar to that of 1887 above. 12mo., 320 pages. Limp cloth, \$1.25.

SCHREIBER, DR. JOSEPH.

A Manual of Treatment by Massage and Methodical Muscle Exercise. Translated by WALTER MENDELSON, M. D., of New York. In one handsome octavo volume of 274 pages, with 117 fine engravings.

This is a work abounding in common sense, a book that sweeps away a great deal of nonsense by which a simple matter has been made obscure, a volume that ought to be read by every one interested in modern therapeutics. The work gives admirable directions for the employment of massage, and capital descriptions of methodical exer-

cise, after which there is a detailed account of the results of treatment of different diseases by these methods. A full bibliography adds to the value of the volume, which can be recommended as one of the best on the subjects with which it deals.—*Edinburgh Medical Journal*, April, 1888.

STURGES' INTRODUCTION TO THE STUDY OF CLINICAL MEDICINE. Being a Guide to the Investigation of Disease. In one handsome 12mo. volume of 127 pages. Cloth, \$1.25.

DAVIS' CLINICAL LECTURES ON VARIOUS IMPORTANT DISEASES. By N. S. DAVIS, M. D. Edited by FRANK H. DAVIS, M. D. Second edition. 12mo. 287 pages. Cloth, \$1.75.

TODD'S CLINICAL LECTURES ON CERTAIN ACUTE DISEASES. In one octavo volume of 320 pages. Cloth, \$2.50.

PAVY'S TREATISE ON THE FUNCTION OF DIGESTION; its Disorders and their Treatment. From the second London edition. In one octavo volume of 238 pages. Cloth, \$2.00.

BARLOW'S MANUAL OF THE PRACTICE OF MEDICINE. With additions by D. F. CONDIE, M. D. 1 vol. 8vo., pp. 603. Cloth, \$2.50.

CHAMBERS' MANUAL OF DIET AND REGIMEN IN HEALTH AND SICKNESS. In one handsome octavo volume of 302 pp. Cloth, \$2.75.

HOLLAND'S MEDICAL NOTES AND REFLECTIONS. 1 vol. 8vo., pp. 483. Cloth, \$2.50.

FLINT, AUSTIN, M. D., LL. D.,*Professor of the Principles and Practice of Medicine in Bellevue Hospital Medical College, N. Y.***A Manual of Auscultation and Percussion;** Of the Physical Diagnosis of Diseases of the Lungs and Heart, and of Thoracic Aneurism. Fourth edition. In one handsome royal 12mo. volume of 278 pages, with 14 illustrations. Cloth, \$1.75.

The original work done by Dr. Flint in the development of the art of physical diagnosis will always make this manual an authority on this subject. Among all the works issued on this topic during the last few years, none exceeds this one in simplicity and completeness. The fact that it has

passed through four editions attests its popularity. There is a tendency among physical diagnosticians to make altogether too many varieties of morbid chest sounds, and especially of rales. The conciseness of Dr. Flint's *Manual* is one of its chief advantages—*Medical Record*, June 16, 1888.

*BY THE SAME AUTHOR.***A Practical Treatise on the Physical Exploration of the Chest and the Diagnosis of Diseases Affecting the Respiratory Organs.** Second and revised edition. In one handsome octavo volume of 591 pages. Cloth, \$4.50.**Phthisis: Its Morbid Anatomy, Etiology, Symptomatic Events and Complications, Fatality and Prognosis, Treatment and Physical Diagnosis;** In a series of Clinical Studies. In one handsome octavo volume of 442 pages. Cloth, \$3.50.**A Practical Treatise on the Diagnosis, Pathology and Treatment of Diseases of the Heart.** Second revised and enlarged edition. In one octavo volume of 550 pages, with a plate. Cloth, \$4.**Essays on Conservative Medicine and Kindred Topics.** In one very handsome royal 12mo. volume of 210 pages. Cloth, \$1.38.**BROWNE, LENNOX, F. R. C. S., E.,***Senior Physician to the Central London Throat and Ear Hospital.***A Practical Guide to Diseases of the Throat and Nose, including Associated Affections of the Ear.** With 120 illustrations in color, and 200 engravings on wood designed and executed by the Author. New (second) and enlarged edition. In one imperial octavo volume of 628 pages. Cloth, \$6.

Mr. Browne's book can be recommended to students and still more to practitioners as a clear, sound and practical guide to the diagnosis and treatment of diseases of the throat. His experience is not only large, but ripe, and he gives his readers the full benefit of it. A particularly praiseworthy feature is that from beginning to end Mr. Browne, whilst giving due prominence to local measures, never fails to insist on the necessity of supplementing these by proper constitutional treatment.—*London Medical Recorder*, May, 1888.

SEILER, CARL, M. D.,*Lecturer on Laryngoscopy in the University of Pennsylvania.***A Handbook of Diagnosis and Treatment of Diseases of the Throat, Nose and Naso-Pharynx.** New (third) edition. In one handsome royal 12mo. volume of 373 pages, with 101 illustrations and 2 colored plates. Cloth, \$2.25. *Just ready.***GROSS, S. D., M.D., LL.D., D.C.L. Oxon., LL.D. Cantab.****A Practical Treatise on Foreign Bodies in the Air-passages.** In one octavo volume of 452 pages, with 59 illustrations. Cloth, \$2.75.**COHEN, J. SOLIS, M. D.,***Lecturer on Laryngoscopy and Diseases of the Throat and Chest in the Jefferson Medical College.***Diseases of the Throat and Nasal Passages.** A Guide to the Diagnosis and Treatment of Affections of the Pharynx, Oesophagus, Trachea, Larynx and Nares. Third edition, thoroughly revised and rewritten, with a large number of new illustrations. In one very handsome octavo volume. *Preparing.***BROADBENT, W. H., M. D., F. R. C. P.,***Physician to and Lecturer on Medicine at St. Mary's Hospital.***The Pulse.** In one 12mo. volume. *Preparing.* See *Series of Clinical Manuals*, page 4.

FULLER ON DISEASES OF THE LUNGS AND AIR-PASSAGES. Their Pathology, Physical Diagnosis, Symptoms and Treatment. From the second and revised English edition. In one octavo volume of 475 pages. Cloth, \$3.50.

SLADE ON DIPHTHERIA; its Nature and Treatment, with an account of the History of its prevalence in various Countries. Second and revised edition. In one 12mo. vol., pp. 158. Cloth, \$1.25.

WALSHE ON THE DISEASES OF THE HEART AND GREAT VESSELS. Third American edition. In 1 vol. 8vo., 416 pp. Cloth, \$3.00.

SMITH ON CONSUMPTION; its Early and Removable Stages. 1 vol. 8vo., pp. 253. Cloth, \$2.25.

LA ROCHE ON PNEUMONIA. 1 vol. 8vo. of 490 pages. Cloth, \$3.00.

WILLIAMS ON PULMONARY CONSUMPTION; its Nature, Varieties and Treatment. With an analysis of one thousand cases to exemplify its duration. In one 8vo. vol. of 303 pp. Cloth, \$2.50.

JONES' CLINICAL OBSERVATIONS ON FUNCTIONAL NERVOUS DISORDERS. Second American edition. In one handsome octavo volume of 340 pages. Cloth, \$3.25.

ROSS, JAMES, M. D., F. R. C. P., LL. D.,*Senior Assistant Physician to the Manchester Royal Infirmary.*

A Handbook on Diseases of the Nervous System. In one octavo volume of 725 pages, with 184 illustrations.

This admirable work is intended for students of medicine and for such medical men as have no time for lengthy treatises. In the present instance the duty of arranging the vast store of material at the disposal of the author, and of abridging the description of the different aspects of nervous diseases, has been performed with singular skill, and the result is a concise and philosophical guide to

Cloth, \$4.50; leather, \$5.50.

the department of medicine of which it treats. Dr. Ross holds such a high scientific position that any writings which bear his name are naturally expected to have the impress of a powerful intellect. In every part this handbook merits the highest praise, and will no doubt be found of the greatest value to the student as well as to the practitioner.—*Edinburgh Medical Journal*, Jan. 1887.

MITCHELL, S. WEIR, M. D.,*Physician to Orthopaedic Hospital and the Infirmary for Diseases of the Nervous System, Phila., etc.*

Lectures on Diseases of the Nervous System; Especially in Women. Second edition. In one 12mo. volume of 288 pages. Cloth, \$1.75.

No work in our language develops or displays more features of that many-sided affection, hysteria, or gives clearer directions for its differentiation, or sounder suggestions relative to its general management and treatment. The book is particularly valuable in that it represents in the main the author's own clinical studies, which have been so extensive and fruitful as to give his

teachings the stamp of authority all over the realm of medicine. The work, although written by a specialist, has no exclusive character, and the general practitioner above all others will find its perusal profitable, since it deals with diseases which he frequently encounters and must essay to treat.—*American Practitioner*, August, 1885.

HAMILTON, ALLAN McLANE, M. D.,*Attending Physician at the Hospital for Epileptics and Paralytics, Blackwell's Island, N. Y.*

Nervous Diseases; Their Description and Treatment. Second edition, thoroughly revised and rewritten. In one octavo volume of 598 pages, with 72 illustrations. Cloth, \$4.

When the first edition of this good book appeared we gave it our emphatic endorsement, and the present edition enhances our appreciation of the book and its author as a safe guide to students of clinical neurology. One of the best and most critical of English neurological journals, *Brain*, has

characterized this book as the best of its kind in any language, which is a handsome endorsement from an exalted source. The improvements in the new edition, and the additions to it, will justify its purchase even by those who possess the old.—*Alienist and Neurologist*, April, 1882.

TUKE, DANIEL HACK, M. D.,*Joint Author of The Manual of Psychological Medicine, etc.*

Illustrations of the Influence of the Mind upon the Body in Health and Disease. Designed to elucidate the Action of the Imagination. New edition. Thoroughly revised and rewritten. In one handsome octavo volume of 467 pages, with two colored plates. Cloth, \$3.00.

It is impossible to peruse these interesting chapters without being convinced of the author's perfect sincerity, impartiality, and thorough mental grasp. Dr. Tuke has exhibited the requisite amount of scientific address on all occasions, and the more intricate the phenomena the more firmly has he adhered to a physiological and rational

method of interpretation. Guided by an enlightened deduction, the author has reclaimed for science a most interesting domain in psychology, previously abandoned to charlatans and empirics. This book, well conceived and well written, must commend itself to every thoughtful understanding.—*New York Medical Journal*, September 6, 1884.

CLOUSTON, THOMAS S., M. D., F. R. C. P., L. R. C. S.,*Lecturer on Mental Diseases in the University of Edinburgh.*

Clinical Lectures on Mental Diseases. With an Appendix, containing an Abstract of the Statutes of the United States and of the Several States and Territories relating to the Custody of the Insane. By CHARLES F. FOLSOM, M. D., Assistant Professor of Mental Diseases, Med. Dep. of Harvard Univ. In one handsome octavo volume of 541 pages, with eight lithographic plates, four of which are beautifully colored. Cloth, \$4.

The practitioner as well as the student will accept the plain, practical teaching of the author as a forward step in the literature of insanity. It is refreshing to find a physician of Dr. Clouston's experience and high reputation giving the bedside notes upon which his experience has been founded, and his mature judgment established. Such clinical observations cannot but be useful to

the general practitioner in guiding him to a diagnosis and indicating the treatment, especially in many obscure and doubtful cases of mental disease. To the American reader Dr. Folsom's Appendix adds greatly to the value of the work, and will make it a desirable addition to every library.—*American Psychological Journal*, July, 1884.

Dr. Folsom's *Abstract* may also be obtained separately in one octavo volume of 108 pages. Cloth, \$1.50.

SAVAGE, GEORGE H., M. D.,*Lecturer on Mental Diseases at Guy's Hospital, London.*

Insanity and Allied Neuroses, Practical and Clinical. In one 12mo. vol. of 551 pages, with 18 illus. Cloth, \$2.00. See *Series of Clinical Manuals*, page 4.

PLAYFAIR, W. S., M. D., F. R. C. P.

The Systematic Treatment of Nerve Prostration and Hysteria. In one handsome small 12mo. volume of 97 pages. Cloth, \$1.00.

Blandford on Insanity and its Treatment: Lectures on the Treatment, Medical and Legal, of Insane Patients. In one very handsome octavo volume.

ASHHURST, JOHN, JR., M. D.,*Professor of Clinical Surgery, Univ. of Penna., Surgeon to the Episcopal Hospital, Philadelphia.***The Principles and Practice of Surgery.** New (fourth) edition, enlarged and revised. In one large and handsome octavo volume of 1114 pages, with 597 illustrations. Cloth, \$6; leather, \$7; half Russia, \$7.50.

As with Erichsen so with Ashhurst, its position in professional favor is established, and one has now but to notice the changes, if any, in theory and practice, that are apparent in the present as compared with the preceding edition, published three years ago. The work has been brought well up to date, and is larger and better illustrated than before, and its author may rest assured that it will certainly have a "continuance of the favor with which it has heretofore been received."—*The American Journal of the Medical Sciences*, Jan. 1886.

Every advance in surgery worth notice, chronicled in recent literature, has been suitably recognized and noted in its proper place. Suffice it to say, we regard Ashhurst's *Surgery*, as now presented in the fourth edition, as the best single volume on surgery published in the English language, valuable alike to the student and the practitioner, to the one as a text-book, to the other as a manual of practical surgery. With pleasure we give this volume our endorsement in full.—*New Orleans Medical and Surgical Journal*, Jan., 1886.

GROSS, S. D., M. D., LL. D., D. C. L. OXON., LL. D. Cantab.,*Emeritus Professor of Surgery in the Jefferson Medical College of Philadelphia.***A System of Surgery:** Pathological, Diagnostic, Therapeutic and Operative. Sixth edition, thoroughly revised and greatly improved. In two large and beautifully-printed imperial octavo volumes containing 2382 pages, illustrated by 1623 engravings. Strongly bound in leather, raised bands, \$15; half Russia, raised bands, \$16.

Dr. Gross' *System of Surgery* has long been the standard work on that subject for students and practitioners.—*London Lancet*, May 10, 1884.

The work as a whole needs no commendation. Many years ago it earned for itself the enviable reputation of the leading American work on surgery, and it is still capable of maintaining that standard. A considerable amount of new material has been introduced, and altogether the distinguished author has reason to be satisfied that he has placed the work fully abreast of the state of our knowledge.—*Med. Record*, Nov. 18, 1882.

His *System of Surgery*, which, since its first edition in 1859, has been a standard work in this country as well as in America, in "the whole domain of surgery," tells how earnest and laborious and wise a surgeon he was, how thoroughly he appreciated the work done by men in other countries, and how much he contributed to promote the science and practice of surgery in his own. There has been no man to whom America is so much indebted in this respect as the Nestor of surgery.—*British Medical Journal*, May 10, 1884.

DRUITT, ROBERT, M. R. C. S., etc.**Manual of Modern Surgery.** Twelfth edition, thoroughly revised by STANLEY BOYD, M. B., B. S., F. R. C. S. In one 8vo. volume of 965 pages, with 373 illustrations. Cloth, \$4; leather, \$5.

It is essentially a new book, rewritten from beginning to end. The editor has brought his work up to the latest date, and nearly every subject on which the student and practitioner would desire to consult a surgical volume, has found its place here. The volume closes with about twenty pages of formulae covering a broad range of practical therapeutics. The student will find that the new Druitt is to this generation what the old one was to the former, and no higher praise need be accorded to any volume.—*North Carolina Medical Journal*, October, 1887.

Druitt's *Surgery* has been an exceedingly popular work in the profession. It is stated that 50,000 copies have been sold in England, while in the United States, ever since its first issue, it has been used as a text-book to a very large extent. During the late war in this country it was so highly appreciated that a copy was issued by the Government to each surgeon. The present edition, while it has the same features peculiar to the work at first, embodies all recent discoveries in surgery, and is fully up to the times. *Cincinnati Medical News*, September, 1887.

BALL, CHARLES B., M. CH., DUB., F. R. C. S. E.,*Surgeon and Teacher at Sir P. Dun's Hospital, Dublin.***Diseases of the Rectum and Anus.** In one 12mo. volume of 417 pages, with 54 engravings and 4 colored plates. Cloth, \$2.25. Just ready. See *Series of Clinical Manuals*, page 4.

It is a pleasure to read an exhaustive and well-arranged book, such as the one before us. It covers all the ground, and yet is written in a terse and concise style that makes it exceedingly good reading. The work is far in advance of the ordinary text-book on this specialty. It is very complete, and the matter is all of practical importance and well arranged. The writer has done for rectal surgery what Treves in the companion volume

has done for intestinal obstruction, and both works are alike creditable.—*N. Y. Medical Journal*, Jan. 23, 1888.

A capital book in a capital series of clinical manuals. Thoroughly practical, it is both comprehensive and condensed and the possessor of it will find but little use for any more extended work on the subject. Mr. Ball is a most sound surgeon.—*The Medical News*, Feb. 4, 1888.

GIBNEY, V. P., M. D.,*Surgeon to the Orthopaedic Hospital, New York, etc.***Orthopaedic Surgery.** For the use of Practitioners and Students. In one handsome octavo volume, profusely illustrated. *Preparing.***ROBERTS, J. B., M. D., and MORTON, T. S. K., M. D.,**
Lecturer on Anatomy and on Operative Surgery at the Philadelphia School of Anatomy. *Adjunct Professor of Operative Surgery in the Philadelphia Polyclinic.***The Principles and Practice of Modern Surgery.** For the use of Students and Practitioners of Medicine and Surgery. In one very handsome octavo volume of about 500 pages, with many illustrations. *Preparing.*

ERICHSEN, JOHN E., F. R. S., F. R. C. S.,*Professor of Surgery in University College, London, etc.*

The Science and Art of Surgery; Being a Treatise on Surgical Injuries, Diseases and Operations. From the eighth and enlarged English edition. In two large and beautiful octavo volumes of 2316 pages, illustrated with 984 engravings on wood. Cloth, \$9; leather, raised bands, \$11; half Russia, raised bands, \$12.

We have always regarded "The Science and Art of Surgery" as one of the best surgical textbooks in the English language, and this eighth edition only confirms our previous opinion. We take great pleasure in cordially commanding it to our readers.—*The Medical News*, April 11, 1885.

For many years this classic work has been made by preference of teachers the principal text-book on surgery for medical students, while through translations into the leading continental languages it may be said to guide the surgical teachings of the civilized world. No excellence of the former edition has been dropped and no discovery, device or improvement which has

marked the progress of surgery during the last decade has been omitted. The illustrations are many and executed in the highest style of art.—*Louisville Medical News*, Feb. 14, 1885.

We cannot speak too highly of this excellent work. It represents the most advanced and settled views in regard to the science of surgery, and will ever be found a faithful guide and counselor in practice.—*Canada Lancet*, May, 1885.

It appears simultaneously in England, America, Spain and Italy, and is too well known as a safe guide and familiar friend to need further comment.—*New York Medical Journal*, March 28, 1885.

BRYANT, THOMAS, F. R. C. S.,*Surgeon and Lecturer on Surgery at Guy's Hospital, London.*

The Practice of Surgery. Fourth American from the fourth and revised English edition. In one large and very handsome imperial octavo volume of 1040 pages, with 727 illustrations. Cloth, \$6.50; leather, \$7.50; half Russia, \$8.00.

The fourth edition of this work is fully abreast of the times. The author handles his subjects with that degree of judgment and skill which is attained by years of patient toil and varied experience. The present edition is a thorough revision of those which preceded it, with much new matter added. His diction is so graceful and logical, and his explanations are so lucid, as to place the work among the highest order of textbooks for the medical student. Almost every topic in surgery is presented in such a form as to

enable the busy practitioner to review any subject in every-day practice in a short time. No time is lost with useless theories or superfluous verbiage. In short, the work is eminently clear, logical and practical.—*Chicago Medical Journal and Examiner*, April, 1886.

This book is essentially what it purports to be, viz.: a manual for the practice of surgery. It is peculiarly well fitted for the student or busy general practitioner.—*The Medical News*, August 15, 1885.

TREVES, FREDERICK, F. R. C. S.,*Hunterian Professor at the Royal College of Surgeons of England.*

A Manual of Surgery. In Treatises by Various Authors. In three 12mo. volumes, containing 1866 pages, with 213 engravings. Price per volume, cloth, \$2. See *Students' Series of Manuals*, page 4.

We have here the opinions of thirty-three authors, in an encyclopedic form for easy and ready reference. The three volumes embrace every variety of surgical affections likely to be met with, the paragraphs are short and pithy, and the salient points and the beginnings of new subjects are always printed in extra-heavy type, so that a person may find whatever information he may be in need of at a moment's glance.—*Cincinnati Lancet-Clinic*, August 21, 1886.

The hand of Mr. Treves is evident throughout

in the choice, arrangement and logical sequence of the subjects. Every topic, as far as observed, is treated with a fulness of essential detail, which is somewhat surprising. Another characteristic of the work is the well-nigh universal acceptance of modern and progressive views of pathology and treatment. The entire work is conceived and executed in a scientific spirit. It contains the bone and marrow of modern surgery.—*Annals of Surgery*, Oct. 1886.

BUTLIN, HENRY T., F. R. C. S.,*Assistant Surgeon to St. Bartholomew's Hospital, London.*

Diseases of the Tongue. In one 12mo. volume of 456 pages, with 8 colored plates and 3 woodcuts. Cloth, \$3.50. See *Series of Clinical Manuals*, page 4.

The language of the text is clear and concise. The author has aimed to state facts rather than to express opinions, and has compressed within the compass of this small volume the pathology, etiology, etc., of diseases of the tongue that are incon-

veniently scattered through general works on surgery and the practice of medicine. The physician and surgeon will appreciate its value as an aid and guide.—*Physician and Surgeon*, Sept. 1886.

TREVES, FREDERICK, F. R. C. S.,*Surgeon and Lecturer on Surgery at the London Hospital.*

Intestinal Obstruction. In one pocket-size 12mo. volume of 522 pages, with 60 illustrations. Limp cloth, blue edges, \$2.00. See *Series of Clinical Manuals*, page 4.

A standard work on a subject that has not been so comprehensively treated by any contemporary English writer. Its completeness renders a full review difficult, since every chapter deserves minute attention, and it is impossible to do thorough

justice to the author in a few paragraphs. *Intestinal Obstruction* is a work that will prove of equal value to the practitioner, the student, the pathologist, the physician and the operating surgeon.—*British Medical Journal*, Jan. 31, 1885.

GOULD, A. PEARCE, M. S., M. B., F. R. C. S.,*Assistant Surgeon to Middlesex Hospital.*

Elements of Surgical Diagnosis. In one pocket-size 12mo. volume of 589 pages. Cloth, \$2.00. See *Students' Series of Manuals*, page 4.

PIRRIE'S PRINCIPLES AND PRACTICE OF SURGERY. Edited by JOHN NEILL, M. D. In one 8vo. vol. of 784 pp. with 316 illus. Cloth, \$3.75.

MILLER'S PRACTICE OF SURGERY. Fourth and revised American edition. In one large 8vo. vol. of 682 pp., with 364 illustrations. Cloth, \$3.75.

SKEVE'S OPERATIVE SURGERY. In one vol. 8vo. of 661 pages, with 81 woodcuts. Cloth, \$3.25.

MILLER'S PRINCIPLES OF SURGERY. Fourth American from the third Edinburgh edition. In one 8vo. vol. of 638 pages, with 340 illustrations. Cloth, \$3.75.

SMITH, STEPHEN, M. D.,*Professor of Clinical Surgery in the University of the City of New York.***The Principles and Practice of Operative Surgery.** New (second) and thoroughly revised edition. In one very handsome octavo volume of 892 pages, with 1005 illustrations. Cloth, \$4 00; leather, \$5 00.

This excellent and very valuable book is one of the most satisfactory works on modern operative surgery yet published. Its author and publisher have spared no pains to make it as far as possible an ideal, and their efforts have given it a position prominent among the recent works in this department of surgery. The book is a compendium for the modern surgeon. The present, the only revised edition since 1878, presents many changes from the original manual. The volume is much enlarged, and the text has been thoroughly revised, so as to give the most improved methods in aspe-

tic surgery, and the latest instruments known for operative work. It can be truly said that as a handbook for the student, a companion for the surgeon, and even as a book of reference for the physician not especially engaged in the practice of surgery, this volume will long hold a most conspicuous place, and seldom will its readers, no matter how unusual the subject, consult its pages in vain. Its compact form, excellent print, numerous illustrations, and especially its decidedly practical character, all combine to commend it.—*Boston Medical and Surgical Journal*, May 10, 1888.

HOLMES, TIMOTHY, M. A.,*Surgeon and Lecturer on Surgery at St. George's Hospital, London.***A System of Surgery; Theoretical and Practical.** IN TREATISES BY VARIOUS AUTHORS. AMERICAN EDITION, THOROUGHLY REVISED AND RE-EDITED by JOHN H. PACKARD, M. D., Surgeon to the Episcopal and St. Joseph's Hospitals, Philadelphia, assisted by a corps of thirty-three of the most eminent American surgeons. In three large imperial octavo volumes containing 3137 double-columned pages, with 979 illustrations on wood and 13 lithographic plates, beautifully colored. Price per set, cloth, \$18.00; leather, \$21.00; half Russia, \$22.50. *Sold only by subscription.***HOLMES, TIMOTHY, M. A.,***Surgeon and Lecturer on Surgery at St. George's Hospital, London.***A Treatise on Surgery; Its Principles and Practice.** New American from the fifth English edition, edited by T. PICKERING PICK, F. R. C. S., Surgeon and Lecturer on Surgery at St. George's Hospital, London. In one octavo volume of 1000 pages, with about 400 illustrations. *Shortly.***STIMSON, LEWIS A., B. A., M. D.,***Surgeon to the Presbyterian and Bellevue Hospitals, Professor of Clinical Surgery in the Medical Faculty of Univ. of City of N. Y., Corresponding Member of the Societe de Chirurgie of Paris.***A Manual of Operative Surgery.** New (second) edition. In one very hand-some royal 12mo. volume of 503 pages, with 342 illustrations. Cloth, \$2.50.

There is always room for a good book, so that while many works on operative surgery must be considered superfluous, that of Dr. Stimson has held its own. The author knows the difficult art of condensation. Thus the manual serves as a work of reference, and at the same time as a handy guide. It teaches what it professes, the steps of operations. In this edition Dr. Stimson has sought to indicate the changes that have been

effected in operative methods and procedures by the antiseptic system, and has added an account of many new operations and variations in the steps of older operations. We do not desire to extol this manual above many excellent standard British publications of the same class, still we believe that it contains much that is worthy of imitation.—*British Medical Journal*, Jan. 22, 1887.

By the same Author.**A Treatise on Fractures and Dislocations.** In two handsome octavo volumes. Vol. I., FRACTURES, 582 pages, 360 beautiful illustrations. Vol. II., DISLOCATIONS, 540 pages, with 163 illustrations. Complete work *just ready*, cloth, \$5.50; leather, \$7.50. Either volume separately, cloth, \$3.00; leather, \$4.00.

The appearance of the second volume marks the completion of the author's original plan of preparing a work which should present in the fullest manner all that is known on the cognate subjects of Fractures and Dislocations. The volume on Fractures assumed at once the position of authority on the subject, and its companion on Dislocations will no doubt be similarly received. The closing volume of Dr. Stimson's work exhibits the surgery

of Dislocations as it is taught and practised by the most eminent surgeons of the present time. Containing the results of such extended researches it must for a long time be regarded as an authority on all subjects pertaining to dislocations. Every practitioner of surgery will feel it incumbent on him to have it for constant reference.—*Cincinnati Medical News*, May, 1888.

HAMILTON, FRANK H., M. D., LL. D.,*Surgeon to Bellevue Hospital, New York.***A Practical Treatise on Fractures and Dislocations.** Seventh edition thoroughly revised and much improved. In one very handsome octavo volume of 998 pages, with 379 illustrations. Cloth, \$5.50; leather, \$6.50; half Russia, \$7.00.

This book is without a rival in any language. It is essentially a practical treatise, and it gathers within its covers almost everything valuable that has been written about fractures and dislocations. The principles and methods of treatment are very

fully given. The book is so well known that it does not require any lengthened review. We can only say that it is still unapproached as a treatise.—*The Dublin Journal of Medical Science*, Feb. 1886.

MARSH, HOWARD, F. R. C. S.,*Senior Assistant Surgeon to and Lecturer on Anatomy at St. Bartholomew's Hospital, London.***Diseases of the Joints.** In one 12mo. volume of 468 pages, with 64 woodcuts and a colored plate. Cloth, \$2.00. See *Series of Clinical Manuals*, page 4.**PICK, T. PICKERING, F. R. C. S.,***Surgeon to and Lecturer on Surgery at St. George's Hospital, London.***Fractures and Dislocations.** In one 12mo. volume of 530 pages, with 93 illustrations. Limp cloth, \$2.00. See *Series of Clinical Manuals*, page 4.

BURNETT, CHARLES H., A. M., M. D.,*Professor of Otolaryngology in the Philadelphia Polyclinic; President of the American Otological Society.***The Ear, Its Anatomy, Physiology and Diseases.** A Practical Treatise for the use of Medical Students and Practitioners. New (second) edition. In one handsome octavo volume of 580 pages, with 107 illustrations. Cloth, \$4.00; leather, \$5.00.

We note with pleasure the appearance of a second edition of this valuable work. When it first came out it was accepted by the profession as one of the standard works on modern aural surgery in the English language; and in his second edition Dr. Burnett has fully maintained his reputation, for the book is replete with valuable information and suggestions. The revision has been carefully

carried out, and much new matter added. Dr. Burnett's work must be regarded as a very valuable contribution to aural surgery, not only on account of its comprehensiveness, but because it contains the results of the careful personal observation and experience of this eminent aural surgeon.—*London Lancet*, Feb. 21, 1885.

POLITZER, ADAM,*Imperial-Royal Prof. of Aural Therap. in the Univ. of Vienna.***A Text-Book of the Ear and its Diseases.** Translated, at the Author's request, by JAMES PATTERSON CASSELLS, M. D., M. R. C. S. In one handsome octavo volume of 800 pages, with 257 original illustrations. Cloth, \$5.50.

The whole work can be recommended as a reliable guide to the student, and an efficient aid to the practitioner in his treatment.—*Boston Medical and Surgical Journal*, June 7, 1883.

JULER, HENRY E., F. R. C. S.,*Senior Ass't Surgeon, Royal Westminster Ophthalmic Hosp.; late Clinical Ass't, Moorfields, London.***A Handbook of Ophthalmic Science and Practice.** In one handsome octavo volume of 460 pages, with 125 woodcuts, 27 colored plates, selections from the Test-types of Jaeger and Snellen, and Holmgren's Color-blindness Test. Cloth, \$4.50; leather, \$5.50.

It presents to the student concise descriptions and typical illustrations of all important eye affections, placed in juxtaposition, so as to be grasped at a glance. Beyond a doubt it is the best illustrated handbook of ophthalmic science which has ever appeared. Then, what is still better, these

illustrations are nearly all original. We have examined this entire work with great care, and it represents the commonly accepted views of advanced ophthalmologists. We can most heartily commend this book to all medical students, practitioners and specialists.—*Detroit Lancet*, Jan. '85.

NETTLESHIP, EDWARD, F. R. C. S.,*Ophthalmic Surg. and Lect. on Ophth. Surg. at St. Thomas' Hospital, London.***The Student's Guide to Diseases of the Eye.** New (third) edition, thoroughly revised. With a chapter on the Detection of Color-Blindness, by WILLIAM THOMSON, M. D., Professor of Ophthalmology in the Jefferson Medical College. In one 12mo. volume of 479 pages, with 164 illust., test-types and formulæ. Cloth, \$2. Just ready.

The extent of the sale of this now accepted authority has conclusively shown that its claim for favor was not an imaginary one. The introductory chapter on optical outlines is a wonderfully clear statement of the principles involved. The writer's decision of character has fully impressed his production, and this is nowhere more apparent than

in the chapter devoted to operations. A very important part of the work to general practitioners is that embraced in the consideration of eye diseases in relation to general diseases and conditions. The arrangement of the remedies employed into formulæ is adopted, and it contains much useful knowledge.—*South. Practitioner*, Dec., 1887.

NORRIS, WM. F., M. D., and OLIVER, CHAS. A., M. D.*Clin. Prof. of Ophthalmology in Univ. of Pa.***A Text-Book of Ophthalmology.** In one octavo volume of about 500 pages, with illustrations. *Preparing.***CARTER, R. BRUDENELL, & FROST, W. ADAMS,
F. R. C. S., F. R. C. S.,***Ophthalmic Surgeon to and Lecturer on Ophthalmic Surgery at St. George's Hospital, London.**Assistant Ophthalmic Surgeon to and Joint Lecturer on Ophthalmic Surgery at St. George's Hospital, London.***Ophthalmic Surgery.** In one 12mo. volume of 559 pages, with 91 woodcuts, color blindness test, test-types and dots and appendix of formulæ. Cloth, \$2.25. See *Series of Clinical Manuals*, page 4.**WELLS, J. SOELBERG, F. R. C. S.,***Professor of Ophthalmology in King's College Hospital, London, etc.***A Treatise on Diseases of the Eye.** New (fifth) American from the third London edition. In one large octavo volume. *Preparing.***BROWNE, EDGAR A.,***Surgeon to the Liverpool Eye and Ear Infirmary and to the Dispensary for Skin Diseases.***How to Use the Ophthalmoscope.** Being Elementary Instructions in Ophthalmoscopy, arranged for the use of Students. In one small royal 12mo. volume of 116 pages, with 35 illustrations. Cloth, \$1.00.**LAURENCE AND MOON'S HANDY BOOK OF OPHTHALMIC SURGERY,** for the use of Practitioners. Second edition. In one octavo volume of 227 pages, with 65 illust. Cloth, \$2.75.**LAWSON ON INJURIES TO THE EYE, ORBIT AND EYELIDS:** Their Immediate and Remote Effects. 8 vo., 404 pp., 92 illus. Cloth, \$3.50.

ROBERTS, WILLIAM, M. D.*Lecturer on Medicine in the Manchester School of Medicine, etc.*

A Practical Treatise on Urinary and Renal Diseases, including Urinary Deposits. Fourth American from the fourth London edition. In one handsome octavo volume of 609 pages, with 81 illustrations. Cloth, \$3.50.

It may be said to be the best book in print on the subject of which it treats.—*The American Journal of the Medical Sciences*, Jan. 1886.

The peculiar value and finish of the book are in a measure derived from its resolute maintenance of a clinical and practical character. It is an unrivalled exposition of everything which relates directly or indirectly to the diagnosis, prognosis and treatment of urinary diseases, and possesses a completeness not found elsewhere in our lan-

guage in its account of the different affections.—*The Manchester Medical Chronicle*, July, 1885.

The value of this treatise as a guide book to the physician in daily practice can hardly be overestimated. That it is fully up to the level of our present knowledge is a fact reflecting great credit upon Dr. Roberts, who has a wide reputation as a busy practitioner.—*The Medical Record*, July 31, 1886.

PURDY, CHARLES W., M. D.

Bright's Disease and Allied Affections of the Kidneys. In one octavo volume of 288 pages, with illustrations. Cloth, \$2.

The object of this work is to "furnish a systematic, practical and concise description of the pathology and treatment of the chief organic diseases of the kidney associated with albuminuria, which shall represent the most recent advances in our knowledge on these subjects;" and this definition of the object is a fair description of the book. The work is a useful one, giving in a

short space the theories, facts and treatments, and going more fully into their later developments. On treatment the writer is particularly strong, steering clear of generalities, and seldom omitting, what text-books usually do, the unimportant items which are all important to the general practitioner.—*The Manchester Medical Chronicle*, Oct., 1886.

MORRIS, HENRY, M. B., F. R. C. S.,*Surgeon to and Lecturer on Surgery at Middlesex Hospital, London.*

Surgical Diseases of the Kidney. In one 12mo. volume of 554 pages, with 40 woodcuts, and 6 colored plates. Limp cloth, \$2.25. See *Series of Clinical Manuals*, page 4.

In this manual we have a distinct addition to the surgical literature, which gives information not elsewhere to be met with in a single work. Such a book was distinctly required, and Mr. Morris has very diligently and ably performed the task

he took in hand. It is a full and trustworthy book of reference, both for students and practitioners in search of guidance. The illustrations in the text and the chromo-lithographs are beautifully executed.—*The London Lancet*, Feb. 26, 1886.

LUCAS, CLEMENT, M. B., B. S., F. R. C. S.,*Senior Assistant Surgeon to Guy's Hospital, London.*

Diseases of the Urethra. In one 12mo. volume. *Preparing.* See *Series of Clinical Manuals*, page 4.

THOMPSON, SIR HENRY,*Surgeon and Professor of Clinical Surgery to University College Hospital, London.*

Lectures on Diseases of the Urinary Organs. Second American from the third English edition. In one 8vo. volume of 203 pp., with 25 illustrations. Cloth, \$2.25.

By the Same Author.

On the Pathology and Treatment of Stricture of the Urethra and Urinary Fistulæ. From the third English edition. In one octavo volume of 359 pages, with 47 cuts and 3 plates. Cloth, \$3.50.

THE AMERICAN SYSTEM OF DENTISTRY.

In Treatises by Various Authors. Edited by WILBUR F. LITCH, M. D., D. D. S., Professor of Prosthetic Dentistry, Materia Medica and Therapeutics in the Pennsylvania College of Dental Surgery. In three very handsome octavo volumes containing 3160 pages, with 1863 illustrations and 9 full page plates. Per volume, cloth, \$6; leather, \$7; half Morocco, gilt top, \$8. The complete work is now ready. *For sale by subscription only.*

As an encyclopedic of Dentistry it has no superior. It should form a part of every dentist's library, as the information it contains is of the greatest value to all engaged in the practice of dentistry.—*American Jour. Dent. Sci.*, Sept., 1886.

A grand system, big enough and good enough and handsome enough for a monument (which

doubtless it is), to mark an epoch in the history of dentistry. Dentists will be satisfied with it and proud of it—they must. It is sure to be precisely what the student needs to put him and keep him in the right track, while the profession at large will receive incalculable benefit from it.—*Odontographic Journal*, Jan., 1887.

COLEMAN, A., L. R. C. P., F. R. C. S., Exam. L. D. S.,*Senior Dent. Surg. and Lect. on Dent. Surg. at St. Bartholomew's Hosp. and the Dent. Hosp., London.*

A Manual of Dental Surgery and Pathology. Thoroughly revised and adapted to the use of American Students, by THOMAS C. STELLWAGEN, M. A., M. D., D. D. S., Prof. of Physiology at the Philadelphia Dental College. In one handsome octavo volume of 412 pages, with 331 illustrations.

It should be in the possession of every practitioner in this country. The part devoted to first and second dentition and irregularities in the permanent teeth is fully worth the price. In fact, price should not be considered in purchasing such a work. If the money put into some of our *so-called standard text-books* could be converted into such publications as this, much good would result.—*Southern Dental Journal*, May, 1882.

The author brings to his task a large experience acquired under the most favorable circumstances. There have been added to the volume a hundred pages by the American editor, embodying the views of the leading home teachers in dental surgery. The work, therefore, may be regarded as strictly abreast of the times, and as a very high authority on the subjects of which it treats.—*American Practitioner*, July, 1882.

BASHAM ON RENAL DISEASES: A Clinical Guide to their Diagnosis and Treatment. In one 12mo. vol. of 304 pages, with 21 illustrations. Cloth, \$2.00.

GROSS, SAMUEL W., A. M., M. D., LL. D.,*Professor of the Principles of Surgery and of Clinical Surgery in the Jefferson Medical College of Phila.***A Practical Treatise on Impotence, Sterility, and Allied Disorders of the Male Sexual Organs.** New (third) edition, thoroughly revised. In one very handsome octavo volume of 163 pages, with 16 illustrations. Cloth, \$1.50.

It must be gratifying to both author and publishers that large first and second editions of this little work were so soon exhausted, while the fact that it has been translated into Russian may indicate that it filled a void even in foreign literature. His is a careful and physiological study of the sexual act, so far as concerns the male, and all his conclusions are scientifically reached. The book has a place by itself in our literature, and furnishes a large fund of information concerning important matters that are too often passed over in silence.—*The Medical Press*, June, 1887.

This now classical work on the subject of impotence and sterility in the male needs no extended review, for it is already well known to the profession. Dr. Gross has by his tireless labor done more towards clearing up the diagnosis and treatment of these obscure cases than any other American physician. The fact that this book has rapidly run through two large editions, and that the author is now forced to issue a third, is good and sufficient evidence of its excellence.—*Atlanta Medical and Surgical Journal*, April, 1888.

BUMSTEAD, F. J., M. D., LL. D.,*Late Professor of Venereal Diseases at the College of Physicians and Surgeons, New York, etc.**and***TAYLOR, R. W., A. M., M. D.,***Surgeon to Charity Hospital, New York, Prof. of Venereal and Skin Diseases in the University of Vermont, Pres. of the Am. Dermatological Ass'n.*

The Pathology and Treatment of Venereal Diseases. Including the results of recent investigations upon the subject. Fifth edition, revised and largely rewritten, by Dr. Taylor. In one large and handsome octavo volume of 898 pages with 139 illustrations, and thirteen chromo-lithographic figures. Cloth, \$4.75; leather, \$5.75; very handsome half Russia, \$6.25.

It is a splendid record of honest labor, wide research, just comparison, careful scrutiny and original experience, which will always be held as a high credit to American medical literature. This is not only the best work in the English language upon the subjects of which it treats, but also one which has no equal in other tongues for its clear, comprehensive and practical handling of its themes.—*Am. Jour. of the Med. Sciences*, Jan, 1884.

It is certainly the best single treatise on venereal in our own, and probably the best in any language.—*Boston Med. and Surg. Journal*, April 3, 1884.

The character of this standard work is so well

known that it would be superfluous here to pass in review its general or special points of excellence. The verdict of the profession has been passed; it has been accepted as the most thorough and complete exposition of the pathology and treatment of venereal diseases in the language. Admirable as a model of clear description, an exponent of sound pathological doctrine, and a guide for rational and successful treatment, it is an ornament to the medical literature of this country. The additions made to the present edition are eminently judicious, from the standpoint of practical utility.—*Journal of Cutaneous and Venereal Diseases*, Jan. 1884.

CORNIL, V.,*Professor to the Faculty of Medicine of Paris, and Physician to the Lourcine Hospital.*

Syphilis, its Morbid Anatomy, Diagnosis and Treatment. Specially revised by the Author, and translated with notes and additions by J. HENRY C. SIMES, M. D., Demonstrator of Pathological Histology in the University of Pennsylvania, and J. WILLIAM WHITE, M. D., Lecturer on Venereal Diseases and Demonstrator of Surgery in the University of Pennsylvania. In one handsome octavo volume of 461 pages, with 84 very beautiful illustrations. Cloth, \$3.75.

The anatomy, the histology, the pathology and the clinical features of syphilis are represented in this work in their best, most practical and most instructive form, and no one will rise from its

perusal without the feeling that his grasp of the wide and important subject on which it treats is a stronger and surer one.—*The London Practitioner*, Jan. 1882.

HUTCHINSON, JONATHAN, F. R. S., F. R. C. S.,*Consulting Surgeon to the London Hospital.*

Syphilis. In one 12mo. volume of 542 pages, with 8 chromo-lithographs. Cloth, \$2.25. See *Series of Clinical Manuals*, page 4.

Those who have seen most of the disease and those who have felt the real difficulties of diagnosis and treatment will most highly appreciate the facts and suggestions which abound in these pages. It is a worthy and valuable record, not only of Mr. Hutchinson's very large experience

and power of observation, but of his patience and assiduity in taking notes of his cases and keeping them in a form available for such excellent use as he has put them to in this volume.—*London Medical Record*, Nov. 12, 1887.

GROSS, S. D., M. D., LL. D., D. C. L., etc.

A Practical Treatise on the Diseases, Injuries and Malformations of the Urinary Bladder, the Prostate Gland and the Urethra. Third edition, thoroughly revised by SAMUEL W. GROSS, M. D. In one octavo volume of 574 pages, with 170 illustrations. Cloth, \$4.50.

CULLERIER, A., & BUMSTEAD, F. J., M.D., LL.D.,*Surgeon to the Hôpital du Midi. Late Professor of Venereal Diseases in the College of Physicians and Surgeons, New York.*

An Atlas of Venereal Diseases. Translated and edited by FREEMAN J. BUMSTEAD, M. D. In one imperial 4to. volume of 328 pages, double-columns, with 26 plates, containing about 150 figures, beautifully colored, many of them the size of life. Strongly bound in cloth, \$17.00. A specimen of the plates and text sent by mail, on receipt of 25 cts.

HILL ON SYPHILIS AND LOCAL CONTAGIOUS DISORDERS. In one 8vo. vol. of 479 p. Cloth, \$3.25. **LEE'S LECTURES ON SYPHILIS AND SOME FORMS OF LOCAL DISEASE AFFECTING PRINCIPALLY THE ORGANS OF GENERATION.** In one 8vo. vol. of 246 pages. Cloth, \$2.25.

TAYLOR, ROBERT W., A. M., M. D.,

Surgeon to Charity Hospital, New York, and to the Department of Venereal and Skin Diseases of the New York Hospital.

A Clinical Atlas of Venereal and Skin Diseases: Including Diagnosis, Prognosis and Treatment. In eight large folio parts, measuring 14 x 18 inches, and comprising 58 beautifully-colored plates with 192 figures, and 400 pages of text with 65 engravings. Price per part, \$2.50. Parts I. and II. are just ready. *For sale by subscription only.* Specimen plates sent on receipt of 10 cents. A full prospectus is now ready for distribution on application.

This magnificent *Clinical Atlas*, we do not hesitate to say, will be regarded as one of the most valuable and handsome contributions to the medical literature of the age. As its name implies, the *Clinical Atlas* is intended as a working guide for any practitioner who chooses to deal with the widespread class of chronic diseases included in its title. For the adequate accomplishment of its purpose such a work must comprise pictures, life-like in form and color, of a size as large as is compatible with convenience, together with a descriptive, clinical and didactic text. The entire literature of the subjects has been searched for its best illustrations, and selections made with proper permission of living authors. These have been complemented by numerous reproductions from a collection of original paintings from life, gathered by the author during many years of practice. The text has been designed to furnish the practitioner with clear and explicit directions for the proper management of his cases, and at the same time to stimulate the interest of those who may wish to devote their life-work to these subjects. A full statement of the clinical history, varying features, etiology, diagnosis, and prognosis has therefore been followed by definite and complete therapeutic information. In their respective spheres

the author and publishers have left nothing undone to make the *Clinical Atlas* a work which will be recognized as a standard authority on its subjects. The strong faith of its publishers in the merit and wide appreciation which they must feel assured awaits the *Clinical Atlas* at the hands of a discriminating medical public is evidenced by the very moderate figure at which it is supplied, a figure so much below that customarily charged for works of this class that only the widest dissemination can possibly bring them a fair return for their evidently lavish outlay.—*Southern Practitioner*, Sept., 1888.

We have been highly pleased with both the plates and engravings and letter-press. The work should prove invaluable as a guide to the practitioner. The diagnosis of the various diseases of the skin has been amplified and perfected. Etiology has been thoroughly investigated, and treatment simplified. The work of the artist is deserving of all commendation, presenting the various forms and stages of the diseases under consideration with extreme fidelity. Numerous formulae scattered throughout the text will be of great value to the general practitioner.—*Canada Lancet*, Sept., 1888.

HYDE, J. NEVINS, A. M., M. D.,

Professor of Dermatology and Venereal Diseases in Rush Medical College, Chicago.

A Practical Treatise on Diseases of the Skin. For the use of Students and Practitioners. New (second) edition. In one handsome octavo volume of 676 pages, with 2 colored plates and 85 beautiful and elaborate illustrations. Cloth, \$4.50; leather, \$5.50. *Just ready.*

We can heartily commend it, not only as an admirable text-book for teacher and student, but in its clear and comprehensive rules for diagnosis, its sound and independent doctrines in pathology, and its minute and judicious directions for the treatment of disease, as a most satisfactory and complete practical guide for the physician.—*American Journal of the Medical Sciences*, July, 1888.

A useful glossary descriptive of terms is given. The descriptive portions of this work are plain and easily understood, and above all are very accurate. The therapeutic part is abundantly supplied with excellent recommendations. The picture part is well done. The value of the work to practitioners is great because of the excellence of the descriptions, the suggestiveness of the advice, and the correctness of the details and the principles of therapeutics impressed upon the reader.—*Virginia Med. Monthly*, May, 1888.

The second edition of his treatise is like his clinical instruction, admirably arranged, attractive in diction, and strikingly practical throughout. The chapter on general symptomatology is a model in its way; no clearer description of the various primary and consecutive lesions of the skin is to be met with anywhere. Those on general diagnosis and therapeutics are also worthy of careful study. Dr. Hyde has shown himself a comprehensive reader of the latest literature, and has incorporated into his book all the best of that which the past years have brought forth. The prescriptions and formulae are given in both common and metric systems. Text and illustrations are good, and colored plates of rare cases lend additional attractions. Altogether it is a work exactly fitted to the needs of a general practitioner, and no one will make a mistake in purchasing it.—*Medical Press of Western New York*, June, 1888.

FOX, T., M. D., F.R.C.P., and FOX, T.C., B.A., M.R.C.S.,

Physician to the Department for Skin Diseases, University College Hospital, London.

An Epitome of Skin Diseases. With Formulae. For Students and Practitioners. Third edition, revised and enlarged. In one very handsome 12mo. volume of 238 pages. Cloth, \$1.25.

The third edition of this convenient handbook calls for notice owing to the revision and expansion which it has undergone. The arrangement of skin diseases in alphabetical order, which is the method of classification adopted in this work, becomes a positive advantage to the student. The book is one which we can strongly recommend, not only to students but also to practitioners who require a compendious summary of the present state of dermatology.—*British Medical Journal*, July 2, 1883.

We cordially recommend Fox's *Epitome* to those whose time is limited and who wish a handy

manual to lie upon the table for instant reference. Its alphabetical arrangement is suited to this use, for all one has to know is the name of the disease, and here are its description and the appropriate treatment at hand and ready for instant application. The present edition has been very carefully revised and a number of new diseases are described, while most of the recent additions to dermal therapeutics find mention, and the formulae at the end of the book have been considerably augmented.—*The Medical News*, December, 1883.

WILSON, ERASMUS, F. R. S.

The Student's Book of Cutaneous Medicine and Diseases of the Skin.
In one handsome small octavo volume of 535 pages. Cloth, \$3.50.

HILLIER'S HANDBOOK OF SKIN DISEASES; for Students and Practitioners. Second Ameri- | can edition. In one 12mo. volume of 353 pages, with plates. Cloth, \$1.25.

The American Systems of Gynecology and Obstetrics.

Systems of Gynecology and Obstetrics, in Treatises by American Authors. Gynecology edited by MATTHEW D. MANN, A. M., M. D., Professor of Obstetrics and Gynecology in the Medical Department of the University of Buffalo; and Obstetrics edited by BARTON COOKE HIRST, M. D., Associate Professor of Obstetrics in the University of Pennsylvania, Philadelphia. In four very handsome octavo volumes of about 900 pages each, fully illustrated by wood engravings and colored plates. Volumes I. and II. of the GYNECOLOGY, and Volume I. of the OBSTETRICS containing 2764 pages, 871 engravings and 8 colored plates, are now ready. Volume II. of the OBSTETRICS, completing the work, will be ready in May. Per volume: Cloth, \$5.00; leather, \$6.00; half Russia, \$7.00. For sale by subscription only. Address the Publishers. Full descriptive circular free on application.

LIST OF CONTRIBUTORS.

WILLIAM H. BAKER, M. D.,
ROBERT BATTEY, M. D.,
SAMUEL C. BUSEY, M. D.,
JAMES C. CAMERON, M. D.,
HENRY C. COE, A. M., M. D.,
EDWARD P. DAVIS, M. D.,
E. C. DUDLEY, A. B., M. D.,
B. MCÉ. EMMET, M. D.,
GEORGE J. ENGELMANN, M. D.,
HENRY J. GARRIGUES, A. M., M. D.,
WILLIAM GOODELL, A. M., M. D.,
EGBERT H. GRANDIN, A. M., M. D.,
SAMUEL W. GROSS, M. D.,
ROBERT P. HARRIS, M. D.,
GEORGE T. HARRISON, M. D.,
BARTON C. HIRST, M. D.,
STEPHEN Y. HOWELL, M. D.,
A. REEVES JACKSON, A. M., M. D.,
W. W. JAGGARD, M. D.,
EDWARD W. JENKS, M. D., LL. D.,
HOWARD A. KELLY, M. D.,

W. GILL WYLIE, M. D.

CHARLES CARROLL LEE, M. D.,
WILLIAM T. LUSK, M. D., LL. D.,
J. HENDRIE LLOYD, M. D.,
MATTHEW D. MANN, A. M., M. D.,
H. NEWELL MARTIN, F. R. S., M. D.,
D. Sc., M. A.,
RICHARD B. MAURY, M. D.,
C. D. PALMER, M. D.,
ROSWELL PARK, M. D.,
THEOPHILUS PARVIN, M. D., LL. D.,
R. A. F. PENROSE, M. D., LL. D.,
THADDEUS A. REAMY, A. M., M. D.,
J. C. REEVE, M. D.,
A. D. ROCKWELL, A. M., M. D.,
ALEXANDER J. C. SKENE, M. D.,
J. LEWIS SMITH, M. D.,
STEPHEN SMITH, M. D.,
R. STANSBURY SUTTON, A. M., M. D.,
LL. D.,
T. GAILLARD THOMAS, M. D., LL. D.,
ELY VAN DE WARKER, M. D.,

This is a very valuable contribution to the literature of obstetrics. The editors, contributors and publishers are entitled to most hearty congratulations for the complete kind of work that has appeared.—*The Obstetric Gazette*, August, 1888.

This, the companion work to the System of Gynecology by American Authors, equals it in the excellence of the subject-matter and the perfection of the publishers' art. As a treatise for the use of the practitioner the work will be found to represent admirably the obstetric science of the day as exemplified in American practice.—*The Medical News*, August 25, 1888.

There can be but little doubt that this work will find the same favor with the profession that has been accorded to the "System of Medicine by American Authors," and the "System of Gynecology by American Authors." One is at a loss to know what to say of this volume, for fear that just and merited praise may be mistaken for flattery. The subjects of some of the papers are discussed in various works on obstetrics, though not to the full extent that is found in this volume. The papers of Drs. Engelmann, Martin, Hirst, Jaggard and Reeve are incomparably beyond anything that can be found in obstetrical works. Certainly the Editor may be congratulated for having made such a wise selection of his contributors—*Journal of the American Medical Association*, Sept. 8, 1888.

In our notice of the "System of Practical Medicine by American Authors," we made the following statement:—"It is a work of which the profession in this country can feel proud. Written exclusively by American physicians who are acquainted with all the varieties of climate in the United States, the character of the soil, the manners and customs of the people, etc., it is peculiarly adapted to the wants of American practitioners of medicine, and it seems to us that every one of them would desire to have it." Every word thus expressed in regard to the "American System of Practical Medicine" is applicable to the "System of Gynecology by American Authors," which we desire now to bring to the attention of our readers. It, like the other, has been written exclusively by American physicians who are acquainted with all the characteristics of American people, who are well informed in regard to the peculiarities of American women, their manners, customs, modes of living, etc. As every practicing physician is called upon to treat diseases of females, and as they constitute a class to which the family physician must give attention, and cannot pass over to a specialist, we do not know of a work in any department of medicine that we should so strongly recommend medical men generally purchasing.—*Cincinnati Medical News*, July, 1887.

THOMAS, T. GAILLARD, M. D.,

Professor of Diseases of Women in the College of Physicians and Surgeons, N. Y.

A Practical Treatise on the Diseases of Women. Fifth edition, thoroughly revised and rewritten. In one large and handsome octavo volume of 810 pages, with 266 illustrations. Cloth, \$5.00; leather, \$6.00; very handsome half Russia, raised bands, \$6.50.

That the previous editions of the treatise of Dr. Thomas were thought worthy of translation into German, French, Italian and Spanish, is enough to give it the stamp of genuine merit. At home it has made its way into the library of every obstetrician and gynaecologist as a safe guide to practice. No small number of additions have been made to the present edition to make it correspond to recent improvements in treatment.—*Pacific Medical and Surgical Journal*, Jan. 1887.

EDIS, ARTHUR W., M. D., Lond., F. R. C. P., M. R. C. S.,

Assist. Obstetric Physician to Middlesex Hospital, late Physician to British Lying-in Hospital.

The Diseases of Women. Including their Pathology, Causation, Symptoms, Diagnosis and Treatment. A Manual for Students and Practitioners. In one handsome octavo volume of 576 pages, with 148 illustrations.

It is a pleasure to read a book so thoroughly good as this one. The special qualities which are conspicuous are thoroughness in covering the whole ground, clearness of description and conciseness of statement. Another marked feature of the book is the attention paid to the details of many minor surgical operations and procedures, as, for instance, the use of tents, application of leeches, and use of hot water injections. These

are among the more common methods of treatment, and yet very little is said about them in many of the text-books. The book is one to be warmly recommended especially to students and general practitioners, who need a concise but complete résumé of the whole subject. Specialists, too, will find many useful hints in its pages.—*Boston Med. and Surg. Journ.*, March 2, 1882.

EMMET, THOMAS ADDIS, M. D., LL. D.,*Surgeon to the Woman's Hospital, New York, etc.*

The Principles and Practice of Gynaecology; For the use of Students and Practitioners of Medicine. New (third) edition, thoroughly revised. In one large and very handsome octavo volume of 880 pages, with 150 illustrations. Cloth, \$5; leather, \$6; very handsome half Russia, raised bands, \$6.50.

We are in doubt whether to congratulate the author more than the profession upon the appearance of the third edition of this well-known work. Embodying, as it does, the life-long experience of one who has conspicuously distinguished himself as a bold and successful operator, and who has devoted so much attention to the specialty, we feel sure the profession will not fail to appreciate the privilege thus offered them of perusing the views and practice of the author. His earnestness of purpose and conscientiousness are manifest. He gives not only his individual experience but endeavors to represent the actual state of gynaecological science and art.—*British Medical Journal*

May 16, 1885.

The time has passed when Emmet's *Gynaecology* was to be regarded as a book for a single country or for a single generation. It has always been his aim to popularize gynaecology, to bring it within easy reach of the general practitioner. The originality of the ideas compels our admiration and respect. We may well take an honest pride in Dr. Emmet's work and feel that his book can hold its own against the criticism of two continents. It represents all that is most earnest and most thoughtful in American gynaecology.—*American Journal of Obstetrics*, May, 1885.

TAIT, LAWSON, F. R. C. S.,*Fellow of the Royal Medico Chirurgical Society of London, Honorary Member of the Boston Gynaecological Society, Surgeon to the Birmingham and Midland Hospital for Women.*

Diseases of Women and Abdominal Surgery. In one very handsome octavo volume of 600 pages, fully illustrated. *In press.*

DAVENPORT, F. H., M. D.,*Assistant in Gynaecology in the Medical Department of Harvard University, Boston.*

Diseases of Women, a Manual of Non-Surgical Gynaecology. Designed especially for the Use of Students and General Practitioners. In one handsome 12mo. volume with many illustrations. *In press.*

DUNCAN, J. MATTHEWS, M.D., LL. D., F. R. S. E., etc.

Clinical Lectures on the Diseases of Women; Delivered in Saint Bartholomew's Hospital. In one handsome octavo volume of 175 pages. Cloth, \$1.50.

They are in every way worthy of their author; indeed, we look upon them as among the most valuable of his contributions. They are all upon matters of great interest to the general practitioner. Some of them deal with subjects that are not, as a rule, adequately handled in the text-books; others of them, while bearing upon topics that are usually treated of at length in such works, yet bear such a stamp of individuality that they deserve to be widely read.—*N. Y. Medical Journal*, March, 1880.

MAY, CHARLES H., M. D.,*Late House Surgeon to Mount Sinai Hospital, New York.*

A Manual of the Diseases of Women. Being a concise and systematic exposition of the theory and practice of gynaecology. In one 12mo. volume of 342 pages. Cloth, \$1.75.

HODGE, HUGH L., M. D.,*Emeritus Professor of Obstetrics, etc., in the University of Pennsylvania.*

On Diseases Peculiar to Women; Including Displacements of the Uterus. Second edition, revised and enlarged. In one beautifully printed octavo volume of 519 pages, with original illustrations. Cloth, \$4.50.

By the Same Author.

The Principles and Practice of Obstetrics. Illustrated with large lithographic plates containing 159 figures from original photographs, and with numerous woodcuts. In one large quarto volume of 542 double-columned pages. Strongly bound in cloth, \$14.00. Specimens of the plates and letter-press will be forwarded to any address, free by mail, on receipt of six cents in postage stamps.

RAMSBOTHAM, FRANCIS H., M. D.

The Principles and Practice of Obstetric Medicine and Surgery; In reference to the Process of Parturition. A new and enlarged edition, thoroughly revised by the Author. With additions by W. V. KEATING, M. D., Professor of Obstetrics, etc., in the Jefferson Medical College of Philadelphia. In one large and handsome imperial octavo volume of 640 pages, with 64 full-page plates and 43 woodcuts in the text, containing in all nearly 200 beautiful figures. Strongly bound in leather, with raised bands, \$7.

WINCKEL, F.

A Complete Treatise on the Pathology and Treatment of Childbed, For Students and Practitioners. Translated, with the consent of the Author, from the second German edition, by J. R. CHADWICK, M. D. Octavo 484 pages. Cloth, \$4.00.

WEST, CHARLES, M. D.

Lectures on the Diseases of Women. Third American from the third London edition. In one octavo volume of 543 pages. Cloth, \$3.75; leather, \$4.75.

ASHWELL'S PRACTICAL TREATISE ON THE DISEASES PECULIAR TO WOMEN. Third American from the third and revised London edition. In one 8vo. vol. pp. 520. Cloth, \$3.50.

CHURCHILL ON THE PUERPERAL FEVER

AND OTHER DISEASES PECULIAR TO WOMEN. In one 8vo. vol. of 464 pages. Cloth, \$2.50.

MEIGS ON THE NATURE, SIGNS AND TREATMENT OF CHILDBED FEVER. In one 8vo. volume of 346 pages. Cloth, \$2.00.

PARVIN, THEOPHILUS, M. D., LL. D.,*Prof. of Obstetrics and the Diseases of Women and Children in Jefferson Med. Coll., Phila.***The Science and Art of Obstetrics.** In one handsome 8vo. volume of 697 pages, with 214 engravings and a colored plate. Cloth, \$4.25; leather, \$5.25.

It is a ripe harvest that Dr. Parvin offers to his readers. There is no book that can be more safely recommended to the student or that can be turned to in moments of doubt with greater assurance of aid, as it is a liberal digest of safe counsel that has been patiently gathered.—*The American Journal of the Medical Sciences*, July, 1887.

There is not in the language a treatise on the subject which so completely and intelligently gleans the whole field of obstetric literature, giving the reader the winnowed wheat in concise and well-jointed phrase, in language of exceptional purity and strength. The arrangement of the matter of this work is unique and exceedingly

favorable for an agreeable unfolding of the science and art of obstetrics. This new book is the easy superior of any single work among its predecessors for the student or practitioner seeking the best thought of the day in this department of medicine.—*The American Practitioner and News*, April 2, 1887.

This treatise may be defined as exact, concise and scholarly. Parvin's distinguished position as a teacher, his scholarly attainments, and his honest endeavor to do his best by both the student and the physician, will secure for his treatise favorable recognition.—*American Journal of Obstetrics*, May, 1887.

BARNES, ROBERT, M. D., and FANCOURT, M. D.,*Phys. to the General Lying-in Hosp., Lond.**Obstetric Phys. to St. Thomas' Hosp., Lond.***A System of Obstetric Medicine and Surgery, Theoretical and Clinical.** For the Student and the Practitioner. The Section on Embryology contributed by Prof. Milnes Marshall. In one handsome octavo volume of 872 pages, with 231 illustrations. Cloth, \$5; leather, \$6.

The immediate purpose of the work is to furnish a handbook of obstetric medicine and surgery for the use of the student and practitioner. It is not an exaggeration to say of the book that it is the best treatise in the English language yet published, and this will not be a surprise to those who are acquainted with the work of the elder Barnes. Every practitioner who desires to have

the best obstetrical opinions of the time in a readily accessible and condensed form, ought to own a copy of the book.—*Journal of the American Medical Association*, June 12, 1886.

The Authors have made a text-book which is in every way quite worthy to take a place beside the best treatises of the period.—*New York Medical Journal*, July 2, 1887.

PLAYFAIR, W. S., M. D., F. R. C. P.,*Professor of Obstetric Medicine in King's College, London, etc.***A Treatise on the Science and Practice of Midwifery.** New (fourth) American, from the fifth English edition. Edited, with additions, by ROBERT P. HARRIS, M. D. In one handsome octavo volume of 654 pages, with 3 plates and 201 engravings. Cloth, \$4; leather, \$5; half Russia, \$5.50.

Students and practitioners alike have already found out the advantage of possessing a work embodying all the recent advances in the science and practice of midwifery. It has deservedly become a standard treatise upon the subject. The Author has endeavored to dwell especially on the practical part of the subject, so as to make the work a useful guide in this most anxious and re-

sponsible branch of the profession. At the same time, the purely theoretical portion has not been neglected. Dr. Playfair's treatise may fairly be said to represent the modern school of teaching. It is a well-arranged and carefully digested epitome of the science and practice of midwifery which has greatly contributed to the advancement of the study.—*British Medical Journal*, Jan. 3, 1885.

KING, A. F. A., M. D.,*Professor of Obstetrics and Diseases of Women in the Medical Department of the Columbian University, Washington, D. C., and in the University of Vermont, etc.***A Manual of Obstetrics.** New (third) edition. In one very handsome 12mo. volume of 376 pages, with 102 illustrations. Cloth, \$2.25.

This little manual, certainly the best of its kind, fully deserves the popularity which has made a third edition necessary. Clear, practical, concise, its teachings are so fully abreast with recent advances in obstetric science that but few points can be criticised.—*American Journal of Obstetrics*, March, 1887.

This volume deserves commendation. It is not

bulky—it is concise. The chapters are divided with sub-headings, which aid materially in the finding of any particular subject, and the definitions are clear and explicit. It fulfills its purpose admirably, and we know of no better work to place in the student's hands. The illustrations are good.—*Archives of Gynecology*, January, 1887.

BARKER, FORDYCE, A. M., M. D., LL. D. Edin.,*Clinical Professor of Midwifery and the Diseases of Women in the Bellevue Hospital Medical College, New York, Honorary Fellow of the Obstetrical Societies of London and Edinburgh, etc., etc.***Obstetrical and Clinical Essays.** In one handsome 12mo. volume of about 300 pages. Preparing.**PARRY, JOHN S., M. D.,***Obstetrician to the Philadelphia Hospital, Vice-President of the Obstet. Society of Philadelphia.***Extra-Uterine Pregnancy: Its Clinical History, Diagnosis, Prognosis and Treatment.** In one handsome octavo volume of 272 pages. Cloth, \$2.50.**TANNER ON PREGNANCY.** Octavo, 490 pages, 4 colored plates, 16 cuts. Cloth, \$4.25.

LEISHMAN, WILLIAM, M. D.,*Regius Professor of Midwifery in the University of Glasgow, etc.*

A System of Midwifery, Including the Diseases of Pregnancy and the Puerperal State. Third American edition, revised by the Author, with additions by JOHN S. PARRY, M. D., Obstetrician to the Philadelphia Hospital, etc. In one large and very handsome octavo volume of 740 pages, with 205 illustrations. Cloth, \$4.50; leather, \$5.50; very handsome half Russia, raised bands, \$6.00.

The author is broad in his teachings, and discusses briefly the comparative anatomy of the pelvis and the mobility of the pelvic articulations. The second chapter is devoted especially to the study of the pelvis, while in the third the female organs of generation are introduced. The structure and development of the ovum are admirably described. Then follow chapters upon the various subjects embraced in the study of midwifery. The descriptions throughout the work are plain and pleasing. It is sufficient to state that in this, the last edition of this well-known work, every recent advancement in this field has been brought forward.—*Physician and Surgeon*, Jan. 1880.

To the American student the work before us

must prove admirably adapted. Complete in all its parts, essentially modern in its teachings, and with demonstrations noted for clearness and precision, it will gain in favor and be recognized as a work of standard merit. The work cannot fail to be popular and is cordially recommended.—*N. O. Med. and Surg. Journ.*, March, 1880.

It has been well and carefully written. The views of the author are broad and liberal, and indicate a well-balanced judgment and matured mind. We observe no spirit of dogmatism, but the earnest teaching of the thoughtful observer and lover of true science. Take the volume as a whole, and it has few equals.—*Maryland Medical Journal*, Feb. 1880.

LANDIS, HENRY G., A. M., M. D.,*Professor of Obstetrics and the Diseases of Women in Starling Medical College, Columbus, O.*

The Management of Labor, and of the Lying-in Period. In one handsome 12mo. volume of 334 pages, with 28 illustrations. Cloth, \$1.75.

The author has designed to place in the hands of the young practitioner a book in which he can find necessary information in an instant. As far as we can see, nothing is omitted. The advice is sound, and the procedures are safe and practical. *Centralblatt für Gynäkologie*, December 4, 1886.

This is a book we can heartily recommend. The author goes much more practically into the details of the management of labor than most text-books, and is so readable throughout as to

tempt any one who should happen to commence the book to read it through. The author presupposes a theoretical knowledge of obstetrics, and has consistently excluded from this little work everything that is not of practical use in the lying-in room. We think that if it is as widely read as it deserves, it will do much to improve obstetric practice in general.—*New Orleans Medical and Surgical Journal*, Mar. 1886.

SMITH, J. LEWIS, M. D.,*Clinical Professor of Diseases of Children in the Bellevue Hospital Medical College, N. Y.*

A Treatise on the Diseases of Infancy and Childhood. New (sixth) edition, thoroughly revised and rewritten. In one handsome octavo volume of 867 pages, with 40 illustrations. Cloth, \$4.50; leather, \$5.50; half Russia, \$6.00.

For years it has stood high in the confidence of the profession, and with the additions and alterations now made it may be said to be the best book in the language on the subject of which it treats. An examination of the text fully sustains the claims made in the preface, that "in preparing the sixth edition the author has revised the text to such an extent that a considerable part of the book may be considered new." If the young practitioner proposes to place in his library but one book on the diseases of children, we would unhesitatingly say, let that book be the one which is the subject of this notice.—*The American Journal of the Medical Sciences*, April, 1886.

No better work on children's diseases could be placed in the hands of the student, containing, as it does, a very complete account of the symptoms and pathology of the diseases of early life, and possessing the further advantage, in which it stands alone amongst other works on its subject, of recommending treatment in accordance with the most recent therapeutical views.—*British and Foreign Medico-Chirurgical Review*.

Those familiar with former editions of the work

will readily recognize the painstaking with which this revision has been made. Many of the articles have been entirely rewritten. The whole work is enriched with a research and reasoning which plainly show that the author has spared neither time nor labor in bringing it to its present approach towards perfection. The extended table of contents and the well-prepared index will enable the busy practitioner to reach readily and quickly for reference the various subjects treated of in the body of the work, and even those who are familiar with former editions will find the improvements in the present richly worth the cost of the work.—*Atlanta Medical and Surgical Journal*, Dec. 1886.

Dr. Smith's work has justly become the standard all over the world as the book on children's diseases. The whole book is admirable, both for the practitioner and the student. Dr. Smith writes from a large experience and a close observation of cases at the bedside. He is extremely practical, and these facts make the work what it is—the best of all works on the diseases of children.—*Virginia Medical Monthly*, June, 1886.

OWEN, EDMUND, M. B., F. R. C. S.,*Surgeon to the Children's Hospital, Great Ormond St., London.*

Surgical Diseases of Children. In one 12mo. volume of 525 pages, with 4 chromo-lithographic plates and 85 woodcuts. Cloth, \$2. See *Series of Clinical Manuals*, page 4.

One is immediately struck on reading this book with its agreeable style and the evidence it everywhere presents of the practical familiarity of its author with his subject. The book may be

honestly recommended to both students and practitioners. It is full of sound information, pleasantly given.—*Annals of Surgery*, May, 1886.

WEST, CHARLES, M. D.,*Physician to the Hospital for Sick Children, London, etc.*

On Some Disorders of the Nervous System in Childhood. In one small 12mo. volume of 127 pages. Cloth, \$1.00.

WEST'S LECTURES ON THE DISEASES OF INFANCY AND CHILDHOOD. In one octavo vol. **CONDIE'S PRACTICAL TREATISE ON THE**

DISEASES OF CHILDREN. Sixth edition, revised and augmented. In one octavo volume of 779 pages. Cloth, \$5.25; leather, \$6.25.

TIDY, CHARLES MEYMOTT, M. B., F. C. S.,*Professor of Chemistry and of Forensic Medicine and Public Health at the London Hospital, etc.*

Legal Medicine. VOLUME II. Legitimacy and Paternity, Pregnancy, Abortion, Rape, Indecent Exposure, Sodomy, Bestiality, Live Birth, Infanticide, Asphyxia, Drowning, Hanging, Strangulation, Suffocation. Making a very handsome imperial octavo volume of 529 pages. Cloth, \$6.00; leather, \$7.00.

VOLUME I. Containing 664 imperial octavo pages, with two beautiful colored plates. Cloth, \$6.00; leather, \$7.00.

The satisfaction expressed with the first portion of this work is in no wise lessened by a perusal of the second volume. We find it characterized by the same fulness of detail and clearness of expression which we had occasion so highly to commend in our former notice, and which render it so valuable to the medical jurist. The copious

tables of cases appended to each division of the subject must have cost the author a prodigious amount of labor and research, but they constitute one of the most valuable features of the book, especially for reference in medico-legal trials.—*American Journal of the Medical Sciences*, April, 1884.

TAYLOR, ALFRED S., M. D.,*Lecturer on Medical Jurisprudence and Chemistry in Guy's Hospital, London.*

A Manual of Medical Jurisprudence. Eighth American from the tenth London edition, thoroughly revised and rewritten. Edited by JOHN J. REESE, M. D., Professor of Medical Jurisprudence and Toxicology in the University of Pennsylvania. In one large octavo volume of 937 pages, with 70 illustrations. Cloth, \$5.00; leather, \$6.00; half Russia, raised bands, \$6.50.

The American editions of this standard manual have for a long time laid claim to the attention of the profession in this country; and the eighth comes before us as embodying the latest thoughts and emendations of Dr. Taylor upon the subject to which he devoted his life with an assiduity and success which made him *facile princeps* among English writers on medical jurisprudence. Both the author and the book have made a mark too deep to be affected by criticism, whether it be censure or praise. In this case, however, we should

only have to seek for laudatory terms.—*American Journal of the Medical Sciences*, Jan. 1881.

This celebrated work has been the standard authority in its department for thirty-seven years, both in England and America, in both the professions which it concerns, and it is improbable that it will be superseded in many years. The work is simply indispensable to every physician, and nearly so to every liberally-educated lawyer, and we heartily commend the present edition to both professions.—*Albany Law Journal*, March 26, 1881.

By the Same Author.

The Principles and Practice of Medical Jurisprudence. Third edition. In two handsome octavo volumes, containing 1416 pages, with 188 illustrations. Cloth, \$10; leather, \$12.

For years Dr. Taylor was the highest authority in England upon the subject to which he gave especial attention. His experience was vast, his judgment excellent, and his skill beyond cavil. It is therefore well that the work of one who, as Dr. Stevenson says, had an "enormous grasp of all

matters connected with the subject," should be brought up to the present day and continued in its authoritative position. To accomplish this result Dr. Stevenson has subjected it to most careful editing, bringing it well up to the times.—*American Journal of the Medical Sciences*, Jan. 1884.

By the Same Author.

Poisons in Relation to Medical Jurisprudence and Medicine. Third American, from the third and revised English edition. In one large octavo volume of 788 pages. Cloth, \$5.50; leather, \$6.50.

PEPPER, AUGUSTUS J., M. S., M. B., F. R. C. S.,*Examiner in Forensic Medicine at the University of London.*

Forensic Medicine. In one pocket-size 12mo. volume. *Preparing.* See *Students' Series of Manuals*, page 4.

LEA, HENRY C.

Superstition and Force: Essays on The Wager of Law, The Wager of Battle, The Ordeal and Torture. Third revised and enlarged edition. In one handsome royal 12mo. volume of 552 pages.

Cloth, \$2.50.

This valuable work is in reality a history of civilization as interpreted by the progress of jurisprudence. . . . In "Superstition and Force" we have a philosophic survey of the long period intervening between primitive barbarity and civilized enlightenment. There is not a chapter in the work that

should not be most carefully studied; and however well versed the reader may be in the science of jurisprudence, he will find much in Mr. Lea's volume of which he was previously ignorant. The book is a valuable addition to the literature of social science.—*Westminster Review*, Jan. 1880.

By the Same Author.

Studies in Church History. The Rise of the Temporal Power—Benefit of Clergy—Excommunication. New edition. In one very handsome royal octavo volume of 605 pages. Cloth, \$2.50.

The author is pre-eminently a scholar. He takes up every topic allied with the leading theme, and traces it out to the minutest detail with a wealth of knowledge and impartiality of treatment that compel admiration. The amount of information compressed into the book is extraordinary. In no other single volume is the development of the

primitive church traced with so much clearness, and with so definite a perception of complex or conflicting sources. The fifty pages on the growth of the papacy, for instance, are admirable for conciseness and freedom from prejudice.—*Boston Traveller*, May 3, 1883.

Allen's Anatomy	6	Hyde on the Diseases of the Skin	26
American Journal of the Medical Sciences	3	Jones (C. Handfield) on Nervous Disorders	18
American Systems of Gynecology	27	Juler's Ophthalmic Science and Practice	23
American System of Practical Medicine	15	King's Manual of Obstetrics	29
An American System of Dentistry	24	Klein's Histology	4, 13
*Ashhurst's Surgery	20	Landis on Labor	30
Ashwell on Diseases of Women	28	La Roche on Pneumonia, Malaria, etc.	18
Attfield's Chemistry	9	La Roche on Yellow Fever	14
Ball on the Rectum and Anus	4, 20	Laurence and Moon's Ophthalmic Surgery	23
Barker's Obstetrical and Clinical Essays	29	Lawson on the Eye, Orbit and Eyelid	23
Barlow's Practice of Medicine	17	Lea's Studies in Church History	31
Barnes' System of Obstetric Medicine	29	Lee's Superstition and Force	31
Bartholow on Electricity	17	Lee on Syphilis	25
Bartholow's New Remedies and their Uses	11	Lehmann's Chemical Physiology	8
Basham on Renal Diseases	24	*Leishman's Midwifery	30
Bell's Comparative Physiology and Anatomy	4, 7	Lucas on Diseases of the Urethra	4, 24
Bellamy's Surgical Anatomy	6	Ludlow's Manual of Examinations	3
Billings' Universal Medical Dictionary	4	Lyons on Fever	14
Blandford on Insanity	19	Malsch's Organic Materia Médica	11
Bloxam's Chemistry	9	Marsh on the Joints	4, 22
*Bristow's Practice of Medicine	14	May on Diseases of Women	29
Broadbent on the Pulse	4, 18	Medical News	1
Browne on the Ophthalmoscope	23	Medical News Visiting List	3
Browne on the Throat, Nose and Ear	18	Medical News Physicians' Ledger	3
Bruce's Materia Medica and Therapeutics	11	Meigs on Childbed Fever	28
Brunton's Materia Medica and Therapeutics	11	Miller's Practice of Surgery	21
*Bryant's Practice of Surgery	21	Miller's Principles of Surgery	21
*Bumstead on Venereal Diseases	25	Mitchell's Nervous Diseases of Women	19
*Burnett on the Ear	23	Morris on Diseases of the Kidney	4, 24
Butlin on the Tongue	4, 21	Neill and Smith's Compendium of Med. Sci.	3
Carpenter on the Use and Abuse of Alcohol	8	Nettleship on Diseases of the Eye	23
*Carpenter's Human Physiology	8	Norris and Oliver on the Eye	23
Carter & Frost's Ophthalmic Surgery	4, 23	Owen on Diseases of Children	4, 30
Century of American Medicine	14	*Parrish's Practical Pharmacy	28
Chambers on Diet and Regimen	17	Parry on Extra-Uterine Pregnancy	29
Chapman's Human Physiology	8	Parvin's Midwifery	29
Charles' Physiological and Pathological Chem.	10	Pavy on Digestion and its Disorders	17
Churchill on Puerperal Fever	29	Payne's General Pathology	13
Clarke and Lockwood's Dissectors' Manual	4, 6	Pepper's System of Medicine	15
Classen's Quantitative Analysis	10	Pepper's Forensic Medicine	4, 31
Cleland's Dissector	6	Pepper's Surgical Pathology	4, 13
Clouston on Insanity	19	Pick on Fractures and Dislocations	4, 22
Clowes' Practical Chemistry	10	Pirrie's System of Surgery	21
Coats' Pathology	13	Playfair on Nerve Prostration and Hysteria	19
Colen on the Throat	18	*Playfair's Midwifery	29
Colman's Dental Surgery	24	Poncet on the Ear and its Diseases	23
Condie's Diseases of Children	30	Power's Human Physiology	4, 8
Cornil on Syphilis	25	Parry on Bright's Disease and Allied Affections	24
Dalton on the Circulation	7	Balfie's Clinical Chemistry	4, 10
*Dalton's Human Physiology	8	Ramsbotham on Paraffin	28
Davenport on Diseases of Women	28	Ramsden's Theoretical Chemistry	10
Davis' Clinical Lectures	7	*Reynolds' System of Medicine	16
Davis' Medical Physics	7	Richardson's Preventive Medicine	17
Druitt's Modern Surgery	20	Roberts on Urinary Diseases	24
Duncan on Diseases of Women	28	Roberts' Compend of Anatomy	7
*Dunglison's Medical Dictionary	4	Roberts' Principles and Practice of Surgery	20
Edis' Materia Medica and Therapeutics	7	Robertson's Physiological Physics	1, 7
Edis on Diseases of Women	27	Ross on Nervous Diseases	19
Ellis' Demonstrations of Anatomy	7	Savage on Insanity, including Hysteria	4, 19
Emmet's Gynaecology	28	Schäffer's Essentials of Histology	13
*Erichson's System of Surgery	21	Schreiber on Massage	17
Farquharson's Therapeutics and Mat. Med.	16	Selser on the Throat, Nose and Naso-Pharynx	18
Fenwick's Medical Diagnosis	16	Series of Clinical Manuals	4
Flinckson's Clinical Diagnosis	16	Simon's Manual of Chemistry	9
Flint on Auscultation and Percussion	18	Skene's Operative Surgery	21
Flint's Physics	18	Slade on Diphtheria	18
Flint on Respiratory Organs	18	Smith (Edward) on Consumption	18
Flint on the Heart	18	*Smith (J. Lewis) on Children	30
Flint's Essays	18	Smith's Operative Surgery	22
*Flint's Practice of Medicine	14	Sullié on Cholera	16
Folsom's Laws of U. S. on Custody of Insane	19	*Stillé & Malsch's National Dispensatory	12
Foster's Physiology	8	*Stillé's Therapeutics and Materia Médica	12
*Fothergill's Handbook of Treatment	16	Stimson on Fractures and Dislocations	22
Fowles' Elementary Chemistry	9	Stimson's Operative Surgery	22
Fox on Diseases of the Skin	26	Students' Series of Mammals	4
Frankland and Japp's Inorganic Chemistry	18	Tait's Diseases of Women and Abdom. Surgery	28
Fuller on the Lungs and Air Passages	8	Tanner's Manual of Clinical Medicine	16
Galloway's Analysis	20	Taylor's Atlas of Venereal and Skin Diseases	26
Gibson's Orthopedic Surgery	5	Taylor on Poisons	31
Gould's Surgical Diagnosis	16	*Taylor's Medical Jurisprudence	31
*Gray's Anatomy	9	Taylor's Prin. and Pract. of Med. Jurisprudence	31
Greene's Medical Chemistry	13	*Thomas on Diseases of Women	27
Green's Pathology and Morbid Anatomy	11	Thompson on Stricture	24
Griffith's Universal Formulary	18	Thompson on Urinary Organs	24
Gross on Foreign Bodies in Air-Passages	25	Tidby's Legal Medicine	31
Gross on Impotence and Sterility	20	Todd on Acute Diseases	17
Gross on Urinary Organs	16	Treves' Manual of Surgery	21
*Gross' System of Surgery	22	Treves' Surgical Applied Anatomy	4, 6
Habershon on the Abdomen	19	Treves on Intestinal Obstruction	4, 21
*Hamilton on Fractures and Dislocations	6	Tuke on the Influence of Mind on the Body	19
Hamilton on Nervous Diseases	22	Vaughan & Novy's Ptomaines and Leucomaines	16
Hartshorne's Anatomy and Physiology	6	Visiting List, The Medical News	3
Hartshorne's Conspectus of the Med. Sciences	28	Walsh on the Heart	18
Hartshorne's Essentials of Medicine	11	Watson's Practice of Physic	14
Hermann's Experimental Pharmacology	25	*Wells on the Eye	23
Hill on Syphilis	26	West on Diseases of Childhood	30
Hiller's Handbook of Skin Diseases	4	West on Diseases of Women	28
Hoblyn's Medical Dictionary	28	West on Nervous Disorders in Childhood	30
Hodge on Women	28	Williams on Consumption	18
Hodge's Obstetrics	10	Wilson's Handbook of Cutaneous Medicine	26
Hoffmann and Power's Chemical Analysis	5	Wilson's Human Anatomy	6
Holden's Landmarks	17	Winckel on Pathol. and Treatment of Childbed	28
Holland's Medical Notes and Reflections	22	Wöhler's Organic Chemistry	8
*Holmes' System of Surgery	6	Woodhead's Practical Pathology	18
Hornor's Anatomy and Histology	4	Year-Books of Treatment for 1886 and 1887	17
Hudson on Fever	4		
Hutchinson on Syphilis	4, 25		

Books marked * are also bound in half Russia.

LEA BROTHERS & CO., Philadelphia.



LANE MEDICAL LIBRARY

To avoid fine, this book should be returned on
or before the date last stamped below.

--	--	--

N45 Gross, S.W. 72809
G87 Impotence, sterility.

1887	NAME	DATE DUE
------	------	----------

